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TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF PENNSYLVANIA,

AT ITS

THIRTY-SECOND ANNUAL SESSION,

HELD AT LANCASTER, MAY, 1881.

VOLUME XIII.—PART II.

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NOTE.

The Report for Philadelphia County will be found at the close of the volume.

W. B. A.

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OFFICERS FOR THE YEAR 1882.

PRESIDENT.

Jacob L. Ziegler,	Lancaster County.

VICE-PRESIDENTS.

1st. Joseph A. Reed,	Allegheny County.
2d. W. S. Roland,	York "
3d. J. W. Houston,	Chester "
4th. W. Murray Weidman,	Berks "

PERMANENT SECRETARY.

William B. Atkinson,	Philadelphia County.

RECORDING SECRETARY.

G. Thickstun,	Erie County.

CORRESPONDING SECRETARY.

O. H. Allis,	Philadelphia County.

TREASURER.

Benjamin Lee,	Philadelphia County.

COMMITTEE OF PUBLICATION.

Wm. B. Atkinson, *Chairman*,	Philadelphia County.
Benjamin Lee,	" "
William Goodell,	" "
O. H. Allis,	" "
J. G. Stetler,	" "
James Tyson,	" "
Isaac N. Kerlin,	Delaware County.

MINUTES OF THE PROCEEDINGS

OF THE

Medical Society of the State of Pennsylvania,

AT ITS THIRTY-SECOND ANNUAL SESSION,

HELD IN

LANCASTER, MAY 1881.

The Medical Society of the State of Pennsylvania met at Lancaster, in Fulton Hall, Wednesday, May 11th, at 11 A.M.

The President, Dr. J. T. Carpenter, of Schuylkill Co., called the meeting to order, and the exercises were opened with prayer by Rev. J. Y. Mitchell, D.D. Vice-Presidents Dr. Wm. Varian, of Crawford Co., Dr. Thos. Lyon, of Lycoming Co., and Dr. C. A. Rahter, of Dauphin Co.; the Permanent Secretary, Dr. Wm. B. Atkinson, of Philadelphia Co.; the Assistant Secretary, Dr. Alex. Craig, of Lancaster Co.; the Corresponding Secretary, Dr. O. H. Allis, of Philadelphia Co.; and the Treasurer, Dr. B. Lee, of Philadelphia Co., were present.

The reading of the list of delegates was dispensed with, as all the delegates had not registered their names. The register is as follows:—

Adams County.

J. W. C. O'Neal,	Gettysburg.
J. W. Pearson,	York Spring.
R. S. Seiss,	Littlestown.

Allegheny County.

John M. Batten,	Pittsburg.
Thos. J. Gallaher,	"
Thos. Mabon,	Allegheny City.
Robert B. Mowry,	"

Jas. W. Neely,	Pittsburg.
Alex. M. Pollock,	"
Joseph A. Reed,	Dixmont.

Permanent Member:—

R. S. Sutton,	Pittsburg.

Armstrong County.

J. G. Cunningham,	Kittanning.
M. H. Alter,	"

Berks County.

Louis DeB. Kuhn,	Reading.
J. Ellis Kurtz,	"
Bernard R. Lee,	"
A. S. Raudenbush,	Adamstown.
Jas. Y. Shearer,	Sinking Spring.
W. Murray Weidman,	Reading.

Blair County.

C. H. Closson,	Altoona.
Wm. R. Finley,	"
Crawford Irwin,	Hollidaysburg.
S. M. Ross,	Altoona.
G. W. Smith,	Hollidaysburg.
Sidney Thompson,	Spruce Creek.

Bucks County.

A. M. Cooper,	Point Pleasant.
Wm. E. Doughty,	Hartsville.

Permanent Member:—

Harvey Kratz,	Hilltown.

Butler County.

S. Graham,	Butler.

Centre County.

J. F. Alexander,	Centre Hall.
C. Sumner Musser,	Aaronsburg.
F. H. Van Valzah,	Spring Mills.

Permanent Member:—

Augustus Hibler,	Bellefonte.

Chester County.

R. B. Ewing,	West Grove.
Jas. Fulton,	New London.
Edw. Jackson,	West Chester.
H. W. Pownall,	Atglen.
W. R. Perdue,	Unionville.
Chas. E. Woodward,	West Chester.

Permanent Members:—

J. Willis Houston,	Collamer.
Jacob Price,	West Chester.
W. O. Stephens,	Avondale.
J. H. Stubbs,	London Grove.

Clarion County.

J. W. Leadenham,	Knox.

Clearfield County.

J. M. Lydig,	Troutville.
H. B. Van Valzah,	Clearfield.

Columbia County.

C. Lenker,	Buckhorn.
F. W. Redeker,	Espy.

Permanent Members:—

Jos. R. Evans,	Bloomsburg.
B. F. Gardner,	"

Cumberland County.

E. B. Brandt,	Mechanicsburg.
Wm. W. Dale,	Carlisle.
C. C. Hummel,	Mechanicsburg.
W. R. Rowell,	Siddensburgh (York Co.).
G. Winfield Zeigler,	Carlisle.
S. P. Zeigler,	"

Permanent Members:—

J. T. Criswell,	Camp Hill.
R. L. Sibbet,	Carlisle.

Dauphin County.

H. T. Bishop,	Harrisburg.
Margaret A. Cleaves,	"
Thos. J. Dunott,	"

J. W. Ellenberger,	Harrisburg.
John A. Fritchey,	"
Agnes Kemp,	"
P. McGill,	Williamstown.
H. McGowan,	Harrisburg.
W. J. Middleton,	"
E. Lane Schofield,	Wiconisco.

Permanent Members:—

John Curwen,	Harrisburg.
J. Z. Gerhard,	"
H. L. Orth,	"
C. C. Seabrook,	"
Geo. D. Stahley,	"
D. B. Traver,	Steelton.

Delaware County.

Frances N. Baker,	Media.
Isaac N. Kerlin,	Elwyn.
Henry B. Knowles,	Clifton Heights.
R. H. Milner,	Chester.
J. Willoughby,	Clifton Heights.
Wm. B. Ulrich,	Chester.

Erie County.

A. S. Bonsteel,	Corry.
Jas. L. Stewart,	Erie.
G. Thickstun,	Wattsburg.

Fayette County.

R. W. Clark,	Dunbar.

Franklin County.

Isaac N. Snively,	Waynesboro.
David F. Unger,	Mercersburg.

Permanent Member:—

A. H. Strickler,	Waynesboro.

Huntingdon County.

J. W. Dinwiddie,	Warrior's Mark.

Permanent Members:—

A. B. Brumbaugh,	Huntingdon.
D. P. Miller,	"

Indiana County.

J. W. Hughes,	Blairsville.
S. R. Rutledge,	"

Jefferson County.

A. F. Balmer,	Brookville.
M. M. Rankin,	Rockdale Mills.

Lancaster County.

F. G. Albright,	Lancaster.
H. M. Alexander,	Marietta.
H. M. Black,	Strasburg.
S. A. Bockius,	Columbia.
Robert M. Bolenius,	Lancaster.
J C. Brobst,	Litiz.
A. S. Brubaker,	Akron.
J. F. Cottrell,	Columbia.
Thos. B. Cox,	Lancaster.
Jesse H. Davis,	Landersburg.
J. M. Deaver,	Black.
Benj. F. Herr,	Millersville.
E. R. Hershey,	Paradise.
Thos. W. Kay,	Columbia.
J. M. Lightner,	Ephrata.
D. J. McCaa,	"
Henry E. Musser,	Witmer.
B. J. Riemsnyder,	Hinkletown.
U. R. Sheaffer,	Farmersville.
Amos H. Smith,	Paradise.
W. H. Smith,	Intercourse.
H. B. Stehman,	Lancaster.
W. B. Thome,	Mastersonville.
J. P. Ziegler,	Mt. Joy.

Permanent Members:—

John L. Atlee, Sr.,	Lancaster.
John L. Atlee, Jr.,	"
G. W. Bean,	Bainbridge.
G. W. Berntheizel,	Columbia.
Wm. Blackwood,	Lancaster.
Daniel J. Bruner,	Columbia.
Henry Carpenter,	Lancaster.
Wm. Compton,	"

Alex. Craig,	Columbia.
M. L. Davis,	Millersville.
S. T. Davis,	Lancaster.
J. F. Dunlap,	Manheim.
J. Aug. Ehler,	Lancaster.
A. J. Herr,	"
M. L. Herr,	"
J. K. Hertz,	Litiz.
Brainard Leaman,	Leaman Place.
J. K. Lineaweaver,	Columbia.
F. M. Livingstone,	Mountville.
J. H. Mayer,	Willowstreet.
A. M. Miller,	Bird-in-Hand.
F. M. Musser,	Witmer.
J. Harry Musser,	Lampeter.
P. J. Roebuck,	Litiz.
Oliver Roland,	Lancaster.
A. C. Treichler,	Elizabethtown.
W. R. Welchans,	Lancaster.
J. O. Weaver,	Strasburg.
Wm. J. Wentz,	New Providence.
Geo. T. Weseman,	Bainbridge.
J. L. Zeigler,	Mt. Joy.

Luzerne County.

A. A. Barton,	Plains.

Lycoming County.

Geo. J. Pfouts,	Jersey Shore.

McKean County.

J. C. Elliott,	Bradford.
O. S. Wright,	"

Mifflin County.

R. H. Campbell,	Lewistown.
T. H. Van Valzah,	"

Permanent Member:—

A. Rothrock,	McVeytown.

Montgomery County.

Jos. W. Anderson,	Ardmore.
D. R. Beaver,	Conshohocken.
Alice Bennett,	Norristown.
Hiram Corson,	Conshohocken.
Mary Stinson,	Norristown.
Henry H. Whitcomb,	"

Montour County.

J. D. Mausteller,	Danville.
Isaac Pursell,	"

Permanent Members:—

P. C. Newbaker,	Washingtonville.
S. S. Schultz,	Danville.

Northampton County.

J. O. Berlin,	Chapman Quarries.
G. A. Gotwald,	Bethlehem.
Traill Green,	Easton.
Jos. Mixsell,	"
Isaac Ott,	"
Amos Seip,	"

Permanent Member:—

P. B. Breinig,	Bethlehem.

Perry County.

Jas. B. Eby,	Newport.
H. O. Orris,	"
M. B. Stricler,	New Bloomfield.
Jos. Swartz,	Duncannon.

Philadelphia County.

H. St. Clair Ash,	Philadelphia.
John Ashhurst, Jr.,	"
L. K. Baldwin,	"
J. B. H. Bidlack,	"
T. Hewson Bradford,	"
W. R. Cruice,	"
Roland G. Curtin,	"
Geo. B. Dunmire,	"
Thos. H. Fenton,	"

Wm. S. Forbes,	Philadelphia.
R. M. Girvin,	"
Wm. S. Janney,	"
S. R. Knight,	"
Wm. S. Little,	"
Henry Leffmann,	"
Chas. K. Mills,	"
A. K. Minnich,	"
E. E. Montgomery,	"
J. R. Partenheimer,	"
S. D. Risley,	"
John B. Roberts,	"
Carl Seiler,	"
Albert H. Smith,	"
Chas. S. Turnbull,	"
L. Turnbull,	"
James Tyson,	"
Geo. W. Vogler,	"
Frank Woodbury,	"

Permanent Members:—

D. M. Barr,	Philadelphia.
W. R. D. Blackwood,	"
J. Solis Cohen,	"
Richard J. Dunglison,	"
Morris S. French,	"
Wm. Goodell,	"
P. D. Keyser,	"
R. J. Levis,	"
M. O'Hara,	"
John H. Packard,	"
Wm. H. Pancoast,	"

Schuylkill County.

J. H. B. Amick,	Schuylkill Haven.
A. P. Carr,	St. Clair.
Geo. H. Halberstadt,	Pottsville.
Chas. T. Palmer,	"
Will C. J. Smith,	"
Mary Alice Swayze,	"
David Taggart,	Trackville.

Permanent Member:—

Chas. E. Quail,	Auburn.

Snyder County.

H. H. Bordner,	McClure.
H. M. Nipple,	Freeburg.
Jno. Y. Shindel,	Middleburg.

Tioga County.

A. L. Bottum,	Westfield.
Wm. H. Jennings,	Blossburg.

Washington County.

B. A. Emory,	Dunningville.
H. H. McDonough,	Vanceville.
J. A. Patterson,	Zollarsville.

Westmoreland County.

J. L. Crawford,	Greensburg.
Robt. McConaughy,	Mt. Pleasant.

York County.

A. R. Blair,	York.
J. Deisinger,	Hellam.
J. C. Gable,	York.
J. Hay,	"
J. M. Hyson,	"
L. M. Lochman,	"
S. J. Rouse,	"
A. J. Snively,	Hanover.

Permanent Members:—

H. Alleman,	Hanover.
W. D. Bailey,	Dillsburg.
Jas. W. Kerr,	York.
W. S. Roland,	"
J. A. Thomson,	Wrightsville.
J. Wiest,	York.
Geo. P. Yost,	Logansville.

Ex-officio Delegates.

John T. Carpenter, *President*, Pottsville, Schuylkill Co.
Wm. Varian, *Vice-President*, Titusville, Crawford Co.
Thos. Lyon, *Vice-President*, Williamsport, Lycoming Co.
C. A. Rahter, *Vice-President*, Harrisburg, Dauphin Co.
Wm. B. Atkinson, *Permanent Secretary*, Philadelphia.
Alex. Craig, *Assistant Secretary*, Columbia, Lancaster Co.
O. H. Allis, *Corresponding Secretary*, Philadelphia.
Benjamin Lee, *Treasurer*, Philadelphia.

Representatives from State Medical Society of Maryland.

Jas. A. Stewart,	Baltimore.
Jno. Morris,	"

Representatives from New Jersey State Medical Society.

A. A. Hann,	Port Deposit.
E. P. Townsend,	Beverly.

Dr. Henry Carpenter, of Lancaster, Chairman of the Committee of Arrangements, welcomed the delegates in the following words:—

Gentlemen—Delegates to the Meeting of the Medical Society of the State of Pennsylvania: It is my very pleasing duty—on behalf of the Lancaster County Medical Society—to tender to you a cordial, hearty welcome to this, our ancient city, the birthplace of your Association thirty-three years ago. This Association was organized in this city, and alas! how sad to contemplate how few of the cherished old familiar faces of that day are present here now. We miss the cordial, friendly grasp, and genial, pleasant faces of Hume, Muhlenberg, Burrowes, Hays, Emerson, Worthington, Coates, Norris, Parrish, Hiester, Jackson, Mütter, Duffield, Carpenter (of Pottsville), Kerfoot, Carson, Richards, Mayburry, Raub, Huston, Condie, and scores of others who "have passed the bourne," whom we were formerly so delighted to meet, and unto whose voices, pregnant with words of wisdom and instruction, we were so pleased to hearken. But in the language of the poet, "*Mors Janua vitæ*"—

> "Death is the gate to life eternal—
> The entrance to immortal life."

So that we may console ourselves by the reflection that "our loss has been their gain."

We may claim for Lancaster that it is the largest, as well as the oldest inland city of our rapidly-growing country. It was laid out as a borough by James Hamilton, a landed proprietor, getting title from the English crown, in the year 1728; and the adjoining territory erected into a county in 1729, one year subsequently. The city contains a population bordering upon 30,000 inhabitants, while the surrounding county is a little empire, comprising an area of over 620,000 acres, or about 969 square miles, and peopled by about 150,000 inhabitants. It is eminently an agricultural district; its great fertility and productiveness having long since gained for it the enviable name of the "Garden of America." It has been long famous for its big Conestoga horses, great crops of wheat, corn, and latterly of tobacco, industrious and frugal inhabitants, and last, but by no means least, its large number of pretty girls; which condition of things may serve to explain to you the fact that all of our physicians are well-to-do married men (I myself have enjoyed that felicity three several times), all surrounded by the bounties, as well as the cares and consequent responsibilities of the situation, which facts

you can prove by calling upon them, at their homes, where you will find the latch-string hanging freely out, and all most delighted to meet and welcome you. But I will not longer tire your patience with these crude and hastily conceived sentiments, but in their name, and that of their families, wish you a hearty, sincere and cordial welcome to their homes.

Dr. CARPENTER then read the programme for the sessions, which, on motion of Dr. TRAILL GREEN, of Northampton Co., was adopted.

On motion of Dr. S. T. DAVIS, of Lancaster, all physicians in good standing in neighboring societies were given the privileges of the floor and the courtesies of the meeting.

Dr. E. P. TOWNSEND, of Beverly, N. J., a representative from the State Medical Society of New Jersey, being present, was received and invited to the platform.

Dr. TOWNSEND replied as follows:—

Mr. President and Gentlemen: It gives me great pleasure to meet with you again, to represent the State Medical Society of New Jersey before this distinguished body. The State Medical Society of New Jersey believes in the policy of Inter-State delegations, and regularly appoints delegates to adjoining State societies.

Having had the pleasure of representing her at your last annual meeting, at Altoona, I carefully watched your proceedings and tried to report to my Society the salient features of your meeting. One of the most notable of these was your resolution, formerly passed, and last year so earnestly advocated by Dr. TRAILL GREEN, requiring a preparatory examination of all applicants for the study of medicine, as to moral and mental qualifications. This resolution was reported to the New Jersey Society, and I am happy to say, similar regulations were adopted, and made incumbent upon the county societies to fulfil. The old centenarian is proud to copy all from her younger sister organization that may tend to the elevation of our beloved profession. I shall watch the working of your action of last year, on this subject, with considerable interest.

In conclusion, gentlemen, I cordially extend, not only to the delegates whom I hope you will appoint, but to each and every member of this honorable and distinguished body, an invitation to attend the one hundred and fourteenth annual session of the New Jersey State Medical Society, to be held at Long Branch, on the fourth Tuesday of this month.

Dr. O. H. ALLIS, of Philadelphia, Corresponding Secretary, reported but one item, the formation of a new medical society in one of the counties. He also presented his report on the library, with a set of rules for its government:—

At the meeting of 1880, the following resolution was adopted:—

Resolved, That the Philadelphia County Medical Society be constituted the custodian of the publications of the Pennsylvania State

Medical Society and of the Transactions of such other State medical societies as shall exchange with it, until the Pennsylvania State Medical Society shall make other provision for the same.

Resolved, That the Publication Committee shall be constituted a library committee, to report at the next meeting of this Society the rules and necessities of such a library.

In pursuance of these resolutions the following rules were offered:

Name.—The name of the Library shall be The Library of the Pennsylvania State Medical Society.

Contents of Library.—The Library shall consist of the Publications of the State Medical Society; the Exchanges with other State Medical Societies and medical organizations as may be effected and deemed judicious by the officers of the Library.

Officers of the Library.—The officers of the Library shall consist of the Committee of Publication of the Pennsylvania State Medical Society, together with the Librarian of the Philadelphia County Medical Society.

Duties of the Officers.—They shall appoint one of the members of the Publication Committee as the Correspondent of the Library, whose duty it shall be to solicit suitable additions to the Library, and to make an annual report of the condition and progress of the Library to the State Medical Society. They shall meet at the call of the Correspondent. They shall appoint the necessary officers and make the necessary rules for the promoting of the objects of the Library.

RULES OF THE LIBRARY.

1. The Librarian of the Philadelphia County Medical Society shall be the Librarian of the Library of the Pennsylvania State Medical Society.

2. The Library shall be accessible to the Members of County Medical Societies of the State of Pennsylvania.

3. The books of this Library shall not be taken from the Library Building. They shall be for reference, not for circulation.

On motion, the report was accepted and the rules adopted.

Dr. Traill Green presented a bill for committee expenses, which was ordered to be paid.

Dr. R. S. Sutton, of Pittsburg, offered the following, which provoked some discussion, viz:—

Section 2, Article III., of the Constitution shall be so amended as to read as follows:—

Every member of a county medical society in Pennsylvania shall, so long as he is in good standing, be a member of the State Medical Society, and a delegate to its annual sessions.

Under the law, it was laid over for one year.

On motion of Dr. S. T. Davis, it was agreed that in future each delegation to a sister society, or the American Medical Association,

shall organize and appoint a chairman, who shall report at the next meeting of this body.

Dr. VARIAN reported that, as a delegate to the Connecticut State Society, he had been unable to find that body.

On motion, a recess of twenty minutes was allowed for the delegation from each county society to select its representation on the nominating committee.

After which, the Society adjourned until 2 P. M.

Afternoon.

At 2 P. M. the President called the Society to order.

Dr. ALBERT H. SMITH, of Philadelphia Co., offered the following:—

Whereas, This Society has reason to believe that in a recent bill before the State Legislature, in reference to the organization of the Warren Hospital for the Insane, the principle set forth by this Society at the meeting at Chester, in 1879, and afterward embodied in a law enacted by the Legislature, recognizing the propriety of the female insane of the State being treated by physicians of their own sex, and their right so to be treated, has been ignored, and a plan of organization adopted, or is about to be adopted, which will prevent the female patients of the Warren Hospital from being under the unrestricted control of female physicians in their medical treatment and general care;

Whereas, The correctness of the principles enunciated by this Society in this matter has been proven and clearly established by the thorough success of their practical working in those hospitals already organized in obedience thereto; therefore,

Resolved, That this Society does respectfully but earnestly protest against any action in relation to the State Hospital at Warren, or any other to be hereafter founded, which involves a retrograding from the principles recognized, by placing the insane female patients under the sole care of a male medical superintendent, or making the female medical officers subordinate to, or dependent upon, or controllable by such superintendent, or by any plan of organization other than one placing a woman practitioner in unrestricted and absolute authority over the medicinal, moral, and physical treatment of the female patients in State hospitals for the insane.

On motion, it was made the special order, as the first business for Thursday morning.

The amendments to the Constitution, offered last year, were called up and discussed, but the hour having arrived for the address in Surgery, further action was postponed.

Dr. S. M. Ross, of Blair Co., then read the address in Surgery.

Dr. W. B. ULRICH, of Delaware Co., indorsed Dr. Ross's views, and gave the particulars of one or two of his own cases.

After which, on motion, the paper was referred to the Committee of Publication.

Dr. JACOB PRICE, of Chester Co., read a paper on "The Importance of Local Treatment in Congestion and Inflammation of the Cervix of the Impregnated Uterus."

Dr. SUTTON, of Allegheny Co., not only disputed the soundness of Dr. PRICE's treatment, but declared it to be based upon a false pathology exploded hundreds of years ago, and revived again recently. Dr. PRICE found able advocates in Dr. A. M. POLLOCK, of Allegheny Co., Dr. W. W. DALE, of Cumberland Co., Dr. ALBERT H. SMITH, of Philadelphia Co., Dr. JOHN L. ATLEE, of Lancaster Co., and Dr. ULRICH, of Delaware Co., all of whom, in general, accorded with Dr. PRICE in theory and treatment.

Dr. PRICE closed the discussion, and the paper was then referred to the Committee of Publication.

Dr. S. D. RISLEY, of Philadelphia Co., read a paper on "Affections of Lachrymal Passages; their Nature and Treatment."

After some remarks by Dr. DALE, on motion, the paper was referred to the Committee of Publication.

Dr. J. W. C. O'NEAL, of Adams Co., read a paper entitled "Contributions to the History and Use of Katalysine Spring-water at Gettysburg."

The paper was referred as usual.

Dr. C. C. SEABROOK, of Dauphin Co., read a paper on "The Pathology of Shock."

On motion, this was referred.

On motion of Dr. C. A. RAHTER, of Dauphin Co., the amendment to the Constitution, offered by him last year, was taken up:—

Article IV. Section 1: After the word Treasurer add "Judicial Council."

Also, By-Laws, Article I., substitute for Section 10:—

"A Council, consisting of nine members, shall be elected, whose duty it shall be to take cognizance of and decide all questions of an ethical or judicial character that may arise in connection with the Society. Of the nine members of the Council first elected, the three first named on the list shall hold office one year, and the second three named shall hold office for two years. With these exceptions the term of office of members of the Council shall be three years, three being elected annually.

"The said Council shall organize by choosing a President and Secretary, and shall keep a permanent record of its proceedings. The decisions of said Council, on all matters referred to it by the Society, shall be final, and shall be reported to the Society at the earliest practical moment. All questions of a personal character,

including complaints and protests, and all questions on credentials, shall be referred at once, after the report of the Committee of Arrangements, or other presentation, to the Judicial Council, and without discussion."

A motion by Dr. JACKSON, of Chester Co., to strike out "all questions on credentials," was, after some discussion, negatived.

The amendment, as originally offered, was then adopted by an almost unanimous vote.

On motion of Dr. T. GREEN, of Northampton Co., the other amendments were made the special order for Thursday, after action on the first special business.

On motion, the Society adjourned until evening.

Evening.

Vice-President Dr. W. VARIAN, of Crawford Co., called the Society to order at 7½ P. M.

The President, Dr. J. T. CARPENTER, of Schuylkill Co., delivered the annual address.

On motion of Dr. JOHN L. ATLEE, the thanks of the Society were tendered Dr. CARPENTER for his address, and a copy was requested for publication.

On motion, adjourned until 9 A. M. on Thursday.

THURSDAY, May 12.

The session was opened with prayer by Rev. C. F. Knight, D.D., after which the following announcement was made of members of the Nominating Committee:—

Allegheny, T. J. GALLAHER; Berks, L. DE B. KUHN; Blair, GEORGE W. SMITH; Butler, SAMUEL GRAHAM; Chester, JACOB PRICE; Clarion, J. WILLIAM LEADENHAM; Columbia, F. W. REDEKER; Crawford, W. VARIAN; Cumberland, W. W. DALE; Dauphin, H. L. ORTH; Delaware, J. W. PHILLIPS; Erie, J. L. STEWART; Fayette, R. W. CLARK; Franklin, D. M. UNGER; Huntingdon, J. W. DINWIDDIE; Indiana, J. L. CRAWFORD; Jefferson, M. M. RANKIN; Lancaster, J. A. EHLER; Lycoming, THOMAS LYON; McKean, J. C. ELLIOTT; Mifflin, H. VAN VALZAH; Montgomery, J. W. ANDERSON; Montour, J. D. MAUSTELLER; Northampton, A. SEIP; Perry, M. B. STRICKLER; Philadelphia, L. TURNBULL; Schuylkill, J. H. B. AMICK; Venango, A. L. POTTER; Washington, A. J. PATTERSON; Westmoreland, R. MCCONAUGHEY; York, S. J. ROUSE.

On motion of Dr. J. L. STEWART, it was agreed that the Committee should meet at 11½ A. M.

The preamble and resolutions offered yesterday by Dr. SMITH, relative to female superintendents and physicians for the female patients in the insane asylum at Warren and asylums elsewhere were taken up. They were discussed at some length by Drs. SMITH, ATLEE, TRAILL GREEN, CORSON, CURWEN, and RAHTER, after which they were rejected by a large majority.

Drs. JOHN MORRIS and J. A. STEWART, of Baltimore, representatives from the Medical and Chirurgical Faculty of Maryland, were invited to seats on the platform.

Reports of County Societies having been called for, on motion, those not ready were allowed two weeks in which to report directly to the Committee of Publication.

The amendment to the Constitution offered by Dr. J. T. CARPENTER—

Article III. Section 2. The delegates shall receive their appointments from the County Societies and from the College of Physicians of Philadelphia,

Was then discussed, and unanimously rejected.

The amendment offered by Dr. DALE was announced as withdrawn, the appointment of a Judicial Council having rendered it useless.

Dr. S. S. SCHULTZ, of Montour Co., read the "Address in Mental Disorders."

On motion, the address was referred to the Committee of Publication.

Dr. JOHN CURWEN, of Dauphin Co., then read a paper, entitled "Rest in Nervous Diseases."

Dr. J. TYSON, of Philadelphia Co., spoke at some length of the value of electricity as an agent with which to exercise the muscles of patients.

On motion, the paper was referred to the Committee of Publication.

Dr. TRAILL GREEN, of Northampton Co., read a paper on "The State Medical Society and the Preparatory Education of Medical Students."

After discussion, the paper was referred.

Dr. JOHN L. ATLEE, of Lancaster, asked for information whether the Philadelphia County Medical Society had ever complied with the rule of the State Society, requiring county societies to appoint an examining committee to report upon the standard of preparation of applicants.

The Secretary answered that such committee had been appointed.

Dr. OSCAR H. ALLIS, of Philadelphia Co., read a brief paper, entitled, "In what should Preliminary Examinations Consist, and

what Steps should be taken to make them Uniform throughout the State?" The paper was discussed at some length by Drs. SIBBET, POLLOCK, FINLEY, and others.

On motion of Dr. W. R. FINLEY, of Blair Co., a resolution was adopted for the appointment of a committee to report at next annual meeting a schedule of subjects on which applicants for permission to study medicine shall be examined by the Board of Examiners of County Societies.

On motion of Dr. J. S. COHEN, it was agreed that the schedule should be printed in the notices of the next meeting.

The chair appointed the following gentlemen said committee: Drs. O. H. ALLIS, TRAILL GREEN, W. R. FINLEY, J. B. ROBERTS, and W. B. ULRICH.

Dr. WM. B. ATKINSON presented a report from the Committee on State Board of Health.

By request, Mr. John Norris read the names of those members of the House who had voted against the bill or failed to vote, and urged members of the Society to use their influence with those members in behalf of the bill.

A resolution was presented and unanimously passed, in approval of the Senate bill, and urging its speedy passage.

On motion, the report of the Committee was accepted.

Dr. O. H. ALLIS, of the Committee on Rules of Order, reported the following Rules, which, on motion, were adopted and ordered to be published as a part of the programme at each annual meeting:—

RULE I.—*Order of Business.*

The order of business laid down by the Committee of Arrangements shall, when adopted, be rigidly adhered to, unless suspended according to Rule IX. Any person not ready to respond when his name is called shall forfeit his position in favor of the next on the list.

RULE II.—*Length of Time of Addresses, etc.*

The Stated Annual Addresses shall not exceed in their delivery thirty minutes, and voluntary communications, reports, etc., shall not exceed twenty minutes.

RULE III.—*Unfinished Business.*

Matters unavoidably postponed, forfeited privileges, discussion of papers, etc., shall come under unfinished business.

RULE IV.—*New Business.*

All matters not upon the programme must come under new business.

RULE V.—*Exchange of Position on the Programme.*

Members may exchange positions upon the programme, the exchange to be announced at the reading of the first substitute paper, report, etc.; the Secretary being notified in writing, and the same noted upon the programme of the President.

RULE VI.—*Regulating Discussion.*

No person shall be allowed to speak a second time during a discussion until all desiring to speak shall have had an opportunity. No speaker shall be entitled to more than ten minutes, except the reader of the paper, report, etc., who shall be entitled to fifteen minutes in closing the discussion.

RULE VII.—*Public Notice of State Society.*

Notice of the meeting of the State Medical Society, together with the programme, shall be made at least one month previous to the annual meeting; such meeting to be published in the medical journals designated by the Committee of Publication.

RULE VIII.—*To be Especially Observed by the Committee of Arrangements.*

The terms unfinished business and new business shall form the last items of the programme for each morning and afternoon session.

RULE IX.—*Suspension of Rules.*

The above Rules shall not be suspended, except for a definite purpose, a definite time, and by unanimous consent of the members present.

Dr. JOHN CURWEN asked the discharge of his Committee on Epilepsy and Insanity, as none of the county societies had reported to him on the subject.

On motion, this was agreed to.

Adjourned until 2 P. M.

Afternoon.

The President called the Society to order at 2 P. M.

Dr. WM. GOODELL, of Philadelphia, read a paper on the "Extirpation of the Ovaries for Insanity."

The paper was discussed by Drs. CURWEN, ATLEE, and KERLIN, and, on motion, was referred as usual.

Dr. BENJAMIN LEE, of Philadelphia, read the Address in Hygiene. The subject was—"Certain Matters in regard to the Purity of the Air, especially in Large Cities."

Dr. H. LEFFMANN, of Philadelphia, in discussion, said: I venture to take exception to some of the points advanced in the address, and,

first, in regard to the mercurial sewer trap. Complicated machinery is always objectionable in such apparatus. It is liable to get out of order, and such disarrangement is likely to be unnoticed or uncared for, and the attachment will then become worse than useless. I regard it as indispensable that a sewer-trap should be a perfectly simple contrivance. I see, also, additional objection in the fact that mercury is used in considerable amount. Many cases of poisoning by vapor of mercury are on record, and the effects of this vapor are all the more dangerous because of their insidious nature. Mercury also easily dissolves a number of metals, and the amalgams thus formed will act upon metals which pure mercury will not attack. I think, therefore, that in actual experience, this sewer-trap will be found dangerous and inefficient.

I feel that the same kind of criticism must be given to the "Ozonizer" which has been exhibited. Phosphorus is exceedingly dangerous. Inexperienced persons cannot handle it without almost certain injury, and, like mercury, it easily becomes the source of chronic poisoning. To keep such an apparatus as the one here presented in a sick-room would be highly objectionable. The amount of ozone which it could produce would probably be of little service. With the gaseous disinfectants that have corrosive qualities, the difficulty is that they do not produce much effect unless used in such proportion as to corrode and destroy the majority of the articles in the room. Instruments will be rusted, curtains, clothing, and pictures damaged, and even then the disease germs may escape. Ventilation, cleanliness, and for portable articles, the employment of a high temperature, 250° F., or thereabouts, are the proper methods of disinfection.

In regard to the production of Prussian blue, I doubt the possibility, or, at least, the probability, of its formation in the manner described. Even should it be so formed, we must remember that it is quite insoluble, and is one of the least active of the cyanogen compounds.

On motion, the paper was referred to the Committee of Publication.

On motion of Dr. ROLAND, Dr. LEFFMANN was requested to prepare his remarks for publication.

The Committee on Nominations reported, through their chairman, Dr. J. AUG. EHLER, as follows:—

The Committee on Nominations would respectfully report the result of their deliberations, and name the following persons for officers of the Society for the year 1882:—

President.

Jacob L. Ziegler,	Lancaster County.

Vice-Presidents.

1st. Joseph A. Reed,	Allegheny County.
2d. W. S. Roland,	York "
3d. J. W. Houston,	Chester "
4th. W. Murray Weidman,	Berks "

Permanent Secretary.

William B. Atkinson,	Philadelphia County.

Recording Secretary.

G. Thickstun,	Erie County.

Corresponding Secretary.

O. H. Allis,	Philadelphia County.

Treasurer.

Benjamin Lee,	Philadelphia County.

Place of meeting, Titusville, Crawford Co. Time, 2d Wednesday of May, 1882.

Resolved, That Wm. Varian, of Crawford Co., be Chairman of the Committee of Arrangements, and that the Crawford County Medical Society is hereby instructed to name his colleagues on said Committee.

Committee of Publication.

Wm. B. Atkinson,	Philadelphia County.
Benj. Lee,	" "
Wm. Goodell,	" "
O. H. Allis,	" "
J. G. Stetler,	" "
Jas. Tyson,	" "
Isaac N. Kerlin,	Delaware "

Delegates to American Medical Association.

William Varian,	Crawford County.
Amos Seip,	Northampton County.
Jacob Day,	York "
A. F. Balmer,	Jefferson "
J. L. Crawford,	Indiana "
Joseph Swartz,	Perry "

H. St. Clair Ash,	Philadelphia County.
A. S. Bonsteel,	Erie "
T. J. Gallaher,	Allegheny "
J. W. Fulton,	Chester "
Wm. Compton,	Lancaster "
J. D. B. Kuhn,	Berks "
John Curwen,	Dauphin "
M. H. Alter,	Armstrong "
I. Pursell,	Montour "
A. M. Pollock,	Allegheny "
H. Jennings,	Tioga "
Boyd Emory, Sr.,	Washington "
W. B. Ulrich,	Delaware "
H. M. Nipple,	Snyder "

Judicial Council.

For one year—

J. L. Stewart,	Erie County.
John H. Packard,	Philadelphia County.
Wm. Anderson,	Armstrong "

For two years—

Wm. Varian,	Crawford County.
Thos. Lyon,	Lycoming "
R. B. Mowry,	Allegheny "

For three years—

Traill Green,	Northampton County.
H. L. Orth,	Dauphin "
John T. Carpenter,	Schuylkill "

Delegates to the New Jersey State Medical Society.

George D. Nutt,	Lycoming County.
Chas. S. Turnbull,	Philadelphia "
J. H. B. Amick,	Schuylkill "
S. S. Schultz,	Montgomery "
L. Lenker,	Columbia "
Chas. K. Mills,	Philadelphia "
Henry Leffmann,	" "

Delegates to the New York State Medical Society.

J. L. Stewart,	Erie County.
J. C. Elliott,	McKean County.
B. F. Herr,	Lancaster "
Albert H. Smith,	Philadelphia County.

Delegates to the Ohio State Medical Society.

J. M. Batten,	Allegheny County.
J. T. Clarke,	Erie "
E. E. Montgomery,	Philadelphia "
W. H. Stewart,	Armstrong "

Delegates to the Delaware State Medical Society.

James B. Eby,	Perry County.
W. R. Finley,	Blair "
Geo. W. Vogler,	Philadelphia County.
C. A. Woodward,	Chester "

Delegates to the West Virginia State Medical Society.

J. A. Patterson,	Washington County.
D. W. McConaughy,	Westmoreland "
H. Howard Hill,	Bedford "

Delegates to the Medical and Chirurgical Faculty of Maryland.

Saml. J. Rouse,	York County.
G. W. Berntheisel,	Lancaster County.
John Montgomery,	Franklin "
A. S. Brubaker,	Lancaster "

Delegates to the Massachusetts State Medical Society.

L. Turnbull,	Philadelphia County.
H. Corson,	Montgomery "
Ellwood Harvey,	Delaware "
F. G. Albright,	Lancaster "

No change was made in the Censors, save in the fourth district, where J. Montgomery Deaver was made Censor, in place of Brainard Leaman; in the sixth district, A. B. Brumbaugh, Huntingdon Co., in place of D. P. Miller; in the seventh district, M. H. Alter, of Armstrong Co., was an addition; in the tenth district, O. S. Wright, of McKean Co., in place of T. J. Young.

On motion of Dr. Traill Green, the report was received and adopted.

Dr. R. L. Sibbett, of Cumberland Co., presented and read the "Report on Medical Legislation." It contained a *résumé* of acts of legislation already passed in the interest of medicine, and the draft of a proposed act compelling all practitioners to be registered. The report pays a high compliment to the Philadelphia *Record* for the energy, zeal, and success with which it had hunted down, exposed, and brought to justice, issuers of bogus medical diplomas.

Dr. GREEN, on behalf of Dr. SIBBETT, presented a bill of $25 for expenses, which, on motion, was ordered to be paid.

Dr. JACOB PRICE offered the following resolution, which was passed unanimously:—

"*Resolved*, That the thanks of the Medical Society of the State of Pennsylvania are hereby tendered to the editor of the *Public Record*, of Philadelphia, for his untiring and most successful efforts in exposing and bringing to justice those who have been engaged in manufacturing and disposing of bogus medical diplomas."

The annual report of the Treasurer, Dr. B. LEE, was read and referred to an auditing committee, consisting of Drs. EHLER, CURWEN, and STEWART.

The auditors reported that they had examined the accounts of the Treasurer and found them correct.

On motion, the report was received and the auditors were discharged.

Dr. LEE presented a brief report from the Committee on Plumbing and Drainage, and, on motion, the committee was discharged.

Dr. R. G. CURTIN, of Philadelphia, read a paper on "Catarrhal Inflammation of the Pancreas," and Dr. I. N. SNIVELY, of Franklin Co., a paper on "Hygiene in its Relations to the Medical Profession." On motion, both papers were referred.

Dr. O. H. ALLIS, of Philadelphia, read a paper on "Why Deformity so frequently follows Fracture at the Lower End of the Humerus," and "Why Fractures just above or below the Knees are so Dangerous."

Drs. L. TURNBULL, VARIAN, and ATLEE discussed the subject at some length, and in the main agreed with Dr. ALLIS. Dr. ATLEE, however, asserted that Dr. ALLIS's mode of treatment was not new; that, as long ago as the days of Dr. PHYSICK and Dr. DORSEY, substantially the same practice was followed.

Dr. O'NEAL would hesitate to adopt Dr. ALLIS's treatment, for fear that anchylosis and damages for a stiff joint might be the result.

Dr. ULRICH defended Dr. ALLIS's practice, and so did President CARPENTER, who had treated successfully several cases of fracture of the elbow by bandaging the arm in an extended position and without splints. He had passed some of his patients among members of this Society, and so complete had been the cure that they could not discover which of the arms had been fractured.

Dr. ALLIS concluded the discussion by saying that he had very carefully read Dorsey's Surgery, referred to by Dr. ATLEE, and would like every member of the Society to read it and see wherein

the treatment of fractures by that author accorded with or differed from his own.

On motion, the paper was referred.

Dr. TRAILL GREEN offered the following preambles and resolution, which were adopted:—

"WHEREAS, a bill is now before the Legislature of Pennsylvania, the object of which is the erection, on the grounds of the Pennsylvania Institution for Feeble-Minded Children, of two additional buildings, for an asylum or hospital branch, thereby providing means for the better classification of the several grades of mental infirmity treated in that institution; and,

"WHEREAS, the institution in Delaware County represents the only provision made in the State for a class of defective persons as numerous as the insane, and who have been found amenable to modern means of improvement: therefore,

"*Resolved*, That the Medical Society of the State of Pennsylvania, assembled this day at Lancaster, commends the objects of the said bill, and hereby expresses its sympathy with all measures for the scientific care and training of the idiotic and feeble-minded children of this Commonwealth, and hereby presents it as a subject that should receive the enlightened attention of State authorities."

Dr. ULRICH suggested that this action be forwarded immediately to the representatives of Delaware county, which was agreed to.

Dr. JAMES TYSON, of Philadelphia, read a paper treating of Bright's disease of the kidneys, and exhibited specimens of urine containing albumen.

On motion, the paper was referred.

On motion of Dr. ULRICH, it was—

Resolved, That the Publication Committee be instructed to have the future *Transactions* bound in cloth.

On motion, adjourned until Friday.

FRIDAY, May 13.

The Society was called to order by Dr. CARPENTER, President; and Rev. Dr. Greenwald offered prayer.

By request of Dr. A. P. CARR, of Schuylkill Co., the Permanent Secretary, Dr. ATKINSON, read the following letter:—

POTTSVILLE, May 10, 1881.

Dr. Wm. B. Atkinson, Secretary of State Medical Society:—

DEAR SIR: At a special meeting of the Schuylkill County Medical Society, held this day, it was unanimously resolved, that no medical paper presented by Dr. A. P. CARR should be received as a part of the annual report of this Society for 1881, to the State Society, and that the officers of this Society give this notification to the Committee of Publication.

S. C. SPALDING, M.D., *President.*

Attest: R. S. CHRISMAN, *Secretary.*

Dr. VARIAN asked that Dr. CARPENTER, of that county, state how the matter was.

Vice-President Dr. VARIAN having taken the chair, Dr. CARPENTER stated his knowledge of the matter.

Dr. AMICK, of the same Society, made a statement.

Dr. COHEN moved that the Committee of Publication be directed to refer the whole matter to the Censors of that district. After some discussion, on motion of Dr. WEIDMAN, of Berks Co., the matter was referred to the Schuylkill County Medical Society.

Dr. W. S. ROLAND, of York Co., having asked that the remarks of Dr. LEFFMANN on some points in the discussion on the Address in Hygiene, be prepared for publication, on motion of Dr. COHEN, it was resolved that hereafter a stenographic report of the discussions be made.

Dr. L. TURNBULL, of Philadelphia, read a paper on "Defective Hearing of Locomotive Engineers."

On motion, the paper was referred.

On motion of Dr. ATLEE, a committee, to be of Dr. TURNBULL's own choosing, was appointed to bring the matter to the attention of the railroad authorities, and to prepare a memorial to the State Legislature to enact necessary laws relating to the matter.

Dr. J. SOLIS COHEN, of Philadelphia, read the "Address in Medicine."

The paper was discussed by Drs. FRENCH and TOWNSEND, of New Jersey; VOGLER, TYSON, TURNBULL, TRAILL GREEN, RAHTER, ATLEE, and President CARPENTER, and, on motion, referred.

Dr. CRAWFORD IRWIN, of Blair County, read a paper on the "Scarlet Fever Epidemic of Hollidaysburg." A discussion followed, participated in by Dr. TRAILL GREEN (who denied the usual belief that this, or any other disease, was carried by physicians from patient to patient. He regarded these widely-separated cases as the result of different epidemic centres), Dr. ULRICH, Dr. RAHTER, Dr. ATKINSON (who urged upon his hearers the great value of the treatment by free ventilation, good nursing, and the employment of digitalis in positive doses. He explained his method of employing this article, and denied the danger, so much feared, of its cumulative effects), Dr. PEARSON, and others, and was referred.

The paper of Dr. R. H. MILNER, of Delaware County, on "Parasites of the Human Body," was read by Dr. ULRICH.

Drs. ULRICH, LEFFMANN, SEILER, VARIAN, and others followed in discussion. Drs. LEFFMANN and SEILER taking the ground that the hog is not responsible for all the blame cast upon him, and that men are frequently infected with the trichina from eating uncooked or

partly cooked beef and other meats; and Dr. VARIAN believed that the parasite was often introduced into the human body by physicians feeding debilitated patients on raw or partly cooked meats.

On motion, the paper was referred.

Dr. CARL SEILER, of Philadelphia, read a paper on "Chronic Laryngitis."

On motion, it was referred as usual.

Dr. J. L. CRAWFORD, of Indiana County, read a paper on "Indications Calling for Active Treatment in Typhoid Fever."

On motion, this paper was also referred.

On motion, the Society adjourned until 2 P. M.

Afternoon.

The President called the Society to order at 2 P. M.

Dr. S. T. DAVIS, of Lancaster, read the Address in Obstetrics.

On motion, the paper was referred.

Dr. R. J. LEVIS, of Philadelphia, read a paper on his method of treating hydrocele and cystic tumors in general, by injections with carbolic acid.

On motion, the paper was referred.

Dr. S. D. RISLEY, of Philadelphia, presented, by title, his report on "Weak Eyes in the Public Schools of Philadelphia." This report was read by title only, for the reason that the twenty minutes allotted, under the rules of the Society, were not sufficient for its presentation.

On motion, it was referred as usual.

The President appointed the following for 1882:—

To make the Address in Medicine—Dr. E. R. MAYER, Luzerne Co.; In Surgery, Dr. H. L. ORTH, Dauphin Co.; In Obstetrics, Dr. R. S. SUTTON, Allegheny Co.; In Hygiene, Dr. B. F. MUHLENBERG, Berks Co.; In Mental Disorders, Dr. C. K. MILLS, Philadelphia.

Several invitations were read by the Chairman of the Committee of Arrangements, which were accepted and thanks returned.

Dr. W. S. ROLAND, of York, offered the following, which was adopted:—

Resolved, That the Secretaries of the several County Societies in the State shall, within three months after the passage of this resolution, report to the Secretary of the State Society the number of students of medicine under tuition of members in their respective Societies during the year ending May 1, 1881, and the number that appeared before the Medical Examiners for examination during the same time; and that said reports shall be presented in the next *Transactions* of the State Society.

The Secretary read a communication from the American Public Health Association, relative to vaccination, which, on motion, was received.

On motion of Dr. ATKINSON, the Standing Committee, which no longer had any duty to perform, was abolished.

Drs. M. S. FRENCH, of Philadelphia Co., and JOHN L. ATLEE, of Lancaster Co., were appointed by the President to conduct the President elect to the chair.

The President elect, Dr. J. L. ZIEGLER, in taking the chair, thanked the members, and hoped for a full attendance at the next session.

The retiring President, Dr. J. T. CARPENTER, on behalf of the Schuylkill County Medical Society, presented a handsome gavel to the State Medical Society.

Dr. ZIEGLER received it with appropriate remarks.

On motion of Dr. ULRICH, thanks were then tendered to the retiring President, and to the profession and citizens, especially to the ladies, of Lancaster, for their courtesies.

On motion, the Society adjourned to meet in Titusville, on the second Wednesday in May, 1882.

WM. B. ATKINSON,
Permanent Secretary.

CENSORS.

1*st District.*

(Philadelphia, Delaware, and Chester Counties.)

A. FRICKE,	Philadelphia County.
ISAAC N. KERLIN,	Delaware "
JAS. FULTON,	Chester "

2*d District.*

(Bucks, Northampton, Lehigh, Carbon, Monroe, and Pike Counties.)

J. B. WALTER,	Bucks County.
TRAILL GREEN,	Northampton County.
WM. B. ERDMAN,	Lehigh County.

3*d District.*

(Montgomery, Berks, and Schuylkill Counties.)

HIRAM CORSON,	Montgomery County.
W. MURRAY WEIDMAN,	Berks "
D. W. BLAND,	Schuylkill "

4th District.

(Lancaster, Lebanon, Dauphin, Perry, and Snyder Counties.)

J. Montgomery Deaver,	Lancaster County.
H. O. Whitman,	Dauphin "
H. O. Orris,	Perry "

5th District.

(Cumberland, York, Adams, Franklin, and Fulton Counties.)

S. B. Kieffer,	Cumberland County.
J. W. C. O'Neal,	Adams "
Jno. W. Kerr,	York "
Samuel G. Lane,	Franklin "

6th District.

(Juniata, Mifflin, Huntingdon, Blair, Cambria, Bedford, and Somerset Counties.)

A. H. Sheaffer,	Mifflin County.
A. B. Brumbaugh,	Huntingdon County.
John Fay,	Blair "
J. G. Wilson,	Cambria "
D. S. Griffiths,	Bedford "

7th District.

(Fayette, Westmoreland, Indiana, and Armstrong Counties.)

W. S. Duncan,	Fayette County.
D G. McConaughy,	Westmoreland County.
Wm. Anderson,	Indiana "
M. H. Alter,	Armstrong "

8th District.

(Allegheny, Washington, and Greene Counties.)

W. S. Foster,	Allegheny County.
S. L. Blachley,	Washington "

9th District.

(Butler, Beaver, Lawrence, Mercer, Venango, and Clarion Counties)

Samuel Graham,	Butler County.
D. S. Marquis,	Beaver "
E. Griswold,	Mercer "
W. S. Welch,	Venango "
Jas. Ross,	Clarion "

10*th District.*

(Erie, Crawford, Warren, Jefferson, Forest, Elk, McKean, Potter, and Cameron Counties.)

A. S. BONSTEEL,	Erie County.
O. S. WRIGHT,	McKean County.
DAVID BEST,	Crawford "

11*th District.*

(Clearfield, Centre, Clinton, Tioga, Lycoming, Northumberland, and Union Counties.)

A. HIBLER,	Centre County.
C. K. THOMPSON,	Tioga "
B. H. DETWEILER,	Lycoming "

12*th District.*

(Montour, Columbia, Luzerne, and Sullivan Counties.)

JAS. D. STRAWBRIDGE,	Montour County.
E. R. MAYER,	Luzerne "

13*th District.*

(Bradford, Wyoming, Susquehanna, and Wayne Counties.)

D. N. NEWTON,	Bradford County.
L. A. SMITH,	Susquehanna County.

ADDRESS

OF

JOHN T. CARPENTER, A.M., M.D., PRESIDENT.

Fellow-members of the Pennsylvania State Medical Society, and Ladies and Gentlemen of Lancaster.

Thirty-three years have passed away—and with them the average period of existence of a generation of the human race—since a convention of the physicians of this State met, in this good city of Lancaster, and organized the Pennsylvania State Medical Society. That Association, born in 1848, has returned, in 1881, to hold its annual session in its very birth-place.

Fitly we may review the contrast between "now" and "then," and compare our present, well equipped, and disciplined forces with the small body of pioneers who led the way so bravely, just thirty-three years ago. There was then no organization of the physicians of our State, no union for mutual assistance, no associated effort for elevating the standing of the profession. Massachusetts had her State Medical Society, potent for good in the medical world of New England; New York and New Jersey had enjoyed for many years all the advantages accruing from State medical associations. But in this grand old Commonwealth a few local city or county societies alone existed to indicate the need of brotherhood, as yet unaccomplished. To remedy this disjointed condition of affairs, to cure the solitary selfishness of an isolated medical life, to create common interests, to encourage associated scientific study, to create a commonwealth of medicine in Pennsylvania—organized, directed, and governed for the common good,—such were the objects of our founders, who, in the year of grace 1848, gave form and substance to the State Medical Society. They builded wiser than they knew, when they laid broad and deep the foundations of the fabric which now shelters the entire medical profession. For, the few scattered delegates of a half dozen counties, who attended that primary meet-

ing, are replaced, to-day, by the hundreds who have come up from every quarter of the State to this annual session. And the Medical Society is to-day a power in the land, for good, to an extent never dreamed of by its founders.

It has elevated the medical profession in the eyes of a discriminating public opinion. It has influenced legislation for the benefit of asylums, hospitals, and the public health; and it has published, annually, a volume of the contributions of its members, papers, addresses, and reports, "made up of every creature's best," as a means of spreading broadcast throughout the profession such most recent researches and information as shall help best toward the elucidation of

The Physician's Problems.

If a plea should even be required to show cause for our existence what better *raison d'être* could be given than the simple enumeration of the problems which claim solution at the hands of the now associated medical profession?

I.—In State Medicine.

These are problems which are vital to modern civilization; which involve the welfare of great communities; which deal with quarantine and international commerce; which comprehend the study of epidemic diseases; which search into the causes of insanity, idiocy, and cretinism; which are busy with prevention and modification and relief for the countless ills that have resulted throughout the habitable globe from ignorance and neglect of the laws of hygiene; which call for scientific investigations of the air we breathe, of the water we drink, and of the soil we dwell upon; which demand statistics of whole populations, collected year by year with jealous accuracy, to bear upon the influence of these general causes and conditions which affect the public health. Such are these problems in importance, that, if devoted to their study alone, the work of this great medical Society would be a work incalculably useful.

II.—In Clinical Medicine.

But there are problems relating to the individual which are not inferior in interest or difficulty to those embraced in State medicine. The influence of temperament; the power of hereditary taint of constitution to modify or intensify disease; the result of training on special organs and functions; the effect upon the system of the use and abuse of narcotics, especially tobacco and alcohol; the investigation of the many idiosyncrasies which must be understood

and respected; in fine, the careful regard which must be paid to human tastes, habits, peculiarities, and susceptibilities in order successfully to treat disease; the therapeutic problems also, including the study of the special and characteristic direction of certain remedies to certain tissues and organs; the antagonisms of poisons, and their synergisms; the mechanical effects of some drugs, and the chemical action of others after entering the human body: all these and more demand continual clinical study and record. What an amount of labor to accumulate and sift facts is here! Life is too short for any single intellect, however gifted, to attain certainty in all these things. Only associated and well-directed work can reap and glean these fruitful fields.

III.—In Medical Organization.

How to gather into affiliation the scattered and yet unorganized physicians in counties where no medical society exists? how to enable societies already formed to attract and hold every regular practitioner of medicine within their territorial limits? how to discipline the refractory, and how to stimulate the slow and dull to efficient society-work? These are questions which come up to trouble us, and which also must be acknowledged not yet to have met with satisfactory solutions.

IV.—In Medical Education.

To these problems the attention of the Society has always been directed. Whatever advances have been made, have either been urged upon the profession and the schools by this body, or have received the hearty endorsement of the Society when inaugurated.

No later than last year my distinguished predecessor devoted his entire presidential address to this topic. I will, therefore, now only refer to a few important points. And, first, the entrance door to the study of medicine must be well guarded against the unfit and unqualified. No process known to modern medical colleges can metamorphose the ignorant, careless, ill-mannered youth, into the learned, thoughtful, and courteous physician. Therefore let all such be excluded at the threshold. If every physician were held personally responsible for the preliminary education, the honorable character, and the general fitness of his office students, it would be well for the medical profession, and it would be well for the medical schools. At least let us all see to it that the preliminary examination of every applicant for office privileges, as ordered by the State Society, be rigidly enforced in every county. Let us make choice only of fit persons to serve in the sacred ministry of healing.

And the medical colleges must be encouraged in doing their full duty to the youth we send them for instruction. The graded course, the laboratory facilities, the clinical training, the three (and, if possible, four) years' term of study; in a word, all the facilities of the new methods of medical education must receive our unqualified endorsement and support. *Nulla vestigia retrorsum.* Let the pressure of public opinion be brought to bear upon our medical colleges, and let us insist upon the higher medical education of our students. Let us obtain the best class of material for educating, and let us see to it that it is sent where the greatest advantages are furnished.

The medical education of women has been settled upon the true basis in this Commonwealth. The essential requirements of separate medical instruction, have been met by the establishment of the Women's Medical School and Women's Hospital.

The co-education of the sexes in medicine is not consonant with American ideas of propriety, and would not be tolerated in Pennsylvania—where woman's position has always depended on personal character, and where loss of delicacy and womanliness is loss of everything estimable.

As physicians, the mere fact of their sex puts women at a great disadvantage, and it is very questionable whether their preliminary training is often sufficiently thorough, their habits of thought naturally of a strength and solidity adapted to medical pursuits, or their nerve power generally to be relied upon in terrible emergencies.

If, despite these disadvantages, they shall stand the test of time, this Society must insist that no lower standard be allowed in their education than that which is exacted in the case of other medical practitioners; and then wait calmly and impartially for the "survival of the fittest."

This hurried survey of the subjects which ordinarily occupy the State Medical Society has been sufficiently brief to allow a more extended examination of a single topic.

I have selected the Management of the Insane, as a theme which deserves, and will receive, an attentive hearing.

For insanity is a tremendous fact in the social history of this country. It is estimated that the number of insane is from 45,000 to 50,000 persons, of whom about 4000 are within the limits of the State of Pennsylvania.

Its increase has become cause of serious alarm. It appears that the ratio of insanity to population is rapidly increasing, according to the Rev. Dr. Storrs being as 55 per cent. of insanity to 22 per

cent. of population increase, for the decade between 1860 and 1870, and estimated as from 11 per cent. to 19 per cent. of increase during the past year, in various States of the Union.

Consider also that this increased amount of insanity is obtained from all classes and conditions of men. No rank of life, no form of occupation gives immunity. No exemption can be purchased by the wealthy, or acquired by the wisest or best of men. Few of us cannot recall the case of some dear relative or friend who has suffered from this dire calamity, and no one can feel sure that the blow may never descend upon his own head. And, to become insane means not only to be diseased, but to be deprived of all power of self-control and self-protection. It is considered unsafe for the unhappy invalid to be under the care of his own family and friends. He is consigned to an institution where strict watch and ward are kept over him. Innocent of any crime, he is imprisoned for months, for years, perhaps for life. Worst of all (and from the nature of the case, unavoidably) the insane have to be placed in the company of the insane, and, perhaps, too often aggravate their own mental disorders by sight and hearing of the extravagances of their fellow-patients. Who of us can think of all these things without a personal interest in them? Can any amount of solicitous watchfulness on the part of the public, of this medical society, or of the State authorities, be improper or unnecessary to improve our methods of managing the insane, or to keep from possible abuses or defects the administration of the great hospitals where these afflicted are immured?

So momentous a theme is not brought for the first time before the State Society. Every year an address upon mental disorders is appointed and read before us, by some member whose expert opinions are justly valued. But it has seemed to me that besides these technical papers, read and printed for professional use (and too often buried in the volumes of the Transactions), there is just at this present time an occasion and a need of taking a wider view than usual of the whole field of insanity and its management. We have entered upon a period of general popular agitation of this subject—when suspicions of mistakes and charges of mismanagement in hospital treatment of the insane are given prominence in the columns of the daily press. It is therefore necessary that public opinion should be correctly informed, and not be permitted to run wild with alarm, under exaggerated notions of maladministration in hospitals, and want of protection for the helpless lunatic. It may be best that the review of the subject from independent ground, by one who is entirely unconnected with any institution for the in-

sane, should be given such public utterance as this occasion affords, and that, if possible, the medical officials who manage the hospitals, and the large constituency of the many families in the State who are so sadly represented there, should not be allowed to drift into an unnecessary position of antagonism.

For I wish to say, at the outset, that there is no question among the medical men of Pennsylvania as to the devotion to their duties of the superintendents of our hospitals for the insane. They are faithful, earnest, and humane. No wilful wrongs have ever been suffered under their administration, and they sincerely strive to better the condition of those confided to their care.

It is the system which they are appointed to carry out, which has for years past awakened a growing and grave discontent within the medical profession itself—and to a candid criticism of which we are approaching. We have to ask (and thoughtful physicians have long been asking) whether this system affords a sufficiently varied and extensive distribution of means for the relief of all the afflicted? Whether the scientific treatment of to-day (or at least our use of it) has not been a failure, as a method of curing insanity? Or whether, in Pennsylvania, we have really not attained the standard of scientific treatment as employed in the European hospitals?

To answer these and similar questions, many painstaking investigations of our institutions, and many comparative studies of European establishments have been made by conscientious and able observers. Among these may be specially mentioned Dr. H. B. Wilbur, Superintendent of the State Asylum for Idiots at Syracuse, New York, whose report, published in 1876, contains the results of his study of the British asylums, containing nearly 15,000 patients. His work has been the basis upon which other studies have been made, and which may be summed up as follows:—

I.—The Employment of Patients.

In this particular we find the first great divergence between American and European methods of treating insanity. From the testimony of all observers, this is the emphatic point of difference between foreign hospitals and our own. The Rev. F. H. Wines says, "In the French hospitals, a workshop for patients was just as much a part of the system for the care of the insane, as was the laundry or the drug-store." "In all British asylums Dr. Wilbur found that great diligence was used to occupy patients in work proportionate to their strength, and that all physicians looked upon occupation as positively useful in diminishing excitement and in preventing *ennui*."

In the report of Bethlem Royal Hospital for 1879 the following passage occurs:—

"The greatest difficulty in a hospital like this is to find occupation for the men. The women can work with their needles, play the piano, draw, and be content. Men, on the other hand, roam hopelessly about the galleries or airing-courts, often smoking more than is good for them, and fretting at the enforced idleness. They cannot dig, and are not fit for mental labor. Rest is an essential in most cases of mental disease, but *ennui* is not rest; yearly I regret to see cases drift into chronic insanity because I cannot find employment that will stem the tide. . . ."

In Austria the great public insane asylum, within the limits of the city of Vienna, under charge of Prof. Schläger, carries out the plan of employing the patients. "Out of the 500 to 600 in Prof. Schläger's asylum, from 200 to 300 are employed in regular trades, *i. e.*, shoemaking, tailoring, manufacture of artificial flowers, painting, wood-carving, etc In cases where the patient is indisposed to work, means are tried for interesting him in some way suggested by the chief physician; but no person is *compelled* to work at a certain trade." (Private letter of Dr. Vincent Y. Bowditch.)

This great principle of using work as a means of cure for the insane, is not valued, or at least is not made available in the American institutions. Dr. Von den Steinen, a German physician, skilled in the study of nervous and mental diseases, who visited the asylums of this country, near New York, thus speaks: "I was shocked at the stupid inactivity to be observed even in the quiet wards, and the question involuntarily forced itself on my mind, 'must not one become demented here, if he is not already so?' 'What are the patients doing the whole day?' In response to my inquiries the physician replied, 'Well, they are doing the whole day what they are doing now.'" Why cannot the distress of unoccupied, dreary lives be spared these unfortunates? Should not reform begin here?

II.—Non-restraint of the Insane.

In Europe there is practically a removal of all restraint of insane patients. "At the colony of Gheel, in Belgium, out of 1300 patients only four were under restraint, and large numbers enjoyed almost perfect freedom."

In the statutes of the immense Vienna hospital it is provided, in paragraph xv., "No restraint or punishment may be enforced unless from absolute necessity, and then with the utmost care, only under

the physician's order. A daily report of any such treatment, and the name of the physician ordering it, must be made."

In England and Scotland the mechanical restraints of crib and straight-jacket have been abolished, and the use only of manual restraint allowed. According to Mr. Wines, the English physicians rely upon exercise, occupation, and labor, and say that there is no necessity for either manual, mechanical, or medicinal restraints, in the case of patients to whom a sufficient amount of exercise and useful occupation can be furnished.

Contrast, my friends, this state of comparative liberty with the cruel seclusion enforced under the American system Compare our locked corridors, with the open doors and gates of English and Scottish asylums. Observe the anxiety of the prisoned inmates of our hospitals to regain their freedom. Says Dr. S. G. Howe, "Disguise it as we may, we do keep under unnecessary restraint, and in a sort of slavery, a multitude of unfortunates who sigh for liberty, and to whom it would be very sweet. . . . It would be folly to deny that restraint by walls, by iron sashes, by oaken doors, and by constant guard is necessary for a certain class of patients under our mode of treatment. But it is equal folly to maintain that it is necessary for all, or for nine-tenths; and if not necessary, upon what ground can we defend our violation of a right which the lunatic never forfeited? It is sinful and criminal to abridge unnecessarily the freedom of an innocent man; and it is, moreover, cowardly and cruel to abridge that of an unfortunate lunatic."

An extension of the system of non-restraint obtains largely in European institutions in the granting of furloughs to the harmless insane. Encouragement is given to bringing deranged minds into the society of the sane, and a most happy effect is generally experienced.

Those patients who are supported from public funds are given their allowance in money, for necessary expenses during their absence, and every means is taken to make the patient feel that he co-operates in his own cure and is somewhat put under self-control. In the experience of the medical officers these privileges are seldom abused, and the patients promptly return at the expiration of their leave of absence.

III.—Supervision of the Insane.

In this country no settled plan, uniform in the various States, has been adopted. In the State of Massachusetts, a State Board of Health, Lunacy, and Charity has been created, which has entire control over lunacy institutions and management. In New York

a Commissioner of Lunacy was appointed in 1873 as inspecting and supervising officer of the State insane hospitals—dividing their work and authority in an unsatisfactory way with the State Board of Charities. In Pennsylvania, a certain amount of excellent inspecting work (without much authoritative jurisdiction given by the law) has been done by the Board of Public Charities. In most other States the law provides that the Governor and Council shall have a general oversight of public institutions, making regular or occasional visits. It is also customary for formal visitations, by special committees of the legislatures of all the States, to be regularly made at set times, with previous notice, and not infrequently in a hurried and perfunctory manner. Taking a general survey, and making no particular investigations, little good is accomplished by such visitations.

Here, again, we have to admire the English method, which has so wisely and successfully dealt with the problem of government supervision of the insane.

For the past thirty-six years, the asylums for the insane in England have been under the control of a Board of Commissioners in Lunacy, and those in Scotland, for over twenty years past, under similar jurisdiction.

The results of this supervision have been most satisfactory in adopting, and gradually extending the most enlightened methods of treating the insane—and the improved state of the hospitals in Great Britain has been largely due to their judicious and persevering procedure. A single authoritative and central controlling power has systematized and bettered in every way the condition of the insane in and out of the hospitals. It has strengthened and stayed up the hands of the superintendents, giving efficient aid to their administration of their great trusts, and inspiring a cheerful public confidence that wrongs and abuses could not exist without being exposed and corrected. So satisfactory has the condition of affairs become, that the English system is accepted as a model for our imitation by all competent American criticism.

The following description is from a letter of Dorman B. Eaton, LL.D., of New York.

"The Commission consist of eleven persons. They are to hold their offices during good behavior.

"Among them are three physicians of five years' practice, and three barristers (or lawyers of the higher grade) of ten years' practice, and each of these six professional gentlemen is provided with an adequate salary. They are required to hold no other office, and to have no other occupation for gain but that of attending to the

duties of lunacy administration. In filling vacancies only a barrister of five years' practice can succeed a barrister, only a physician or surgeon of five years' practice can succeed a physician, and neither a physician, surgeon, nor barrister can be appointed to fill a vacancy among the five non-professional members of the Board.

"We see, therefore, with what sedulous care this law has provided for the three distinct varieties of experience and ability upon this national Board of Commissioners: Five men of affairs, to supply business capacity—three barristers, learned in the law and experienced in the courts of justice, to keep the Board within legal limits—three physicians and surgeons to supply medical and surgical science and skill.

"The prestige and capacity which such a body brings to the investigations of lunatic asylums, and the weight which its recommendations naturally carry, must be obvious without more words upon the subject."

If the organization of this Lunacy Commission is so complete, no less are its powers and its authority unembarrassed.

"The Commissioners have ample authority for bringing an examining witness before them, and for securing the production of books and papers in aid of their investigations. They are also empowered to bring suits for, and recover the penalties imposed by law. Their power further extends to visitations, inspections, and taking effective measures for relief in cases where the insane suffer wrong in jails, workhouses, and other places, anywhere in the kingdom." If, in Pennsylvania, there is one need above all others in perfecting the system of managing the insane, it is the establishment of just such a Lunacy Commission as has been so long successfully at work in Great Britain. No other means can be so efficient in doing good. No other supervision can so satisfy the public, or so well protect the rights and interests of the insane. No other system can more efficiently aid the administration of hospital superintendents, and so thoroughly supplement their needs. God speed the day when such a beneficent work shall have been accomplished.

For only years of well-considered and consistent reforms, under an able Lunacy Commission, can cure the radical defects in the American Lunacy System.

These are twofold—and relate to the classification, and to the administration of insane hospitals.

I.—Classification.

In no particular is there so plainly a serious error committed as

in the aggregation of different classes of patients in the same institution. Curable and incurable, acute and chronic, those requiring all the skill and individual treatment possible, and "those who only need looking after in a general way, with special reference to humanity and economy," all these various classes must, under our present method, be mingled together in an overgrown and heterogeneous colony. To correct this evil, at least two different kinds of institutions are required to be maintained—first, hospitals for the acute cases, where all the appliances and advantages given the sick in the great civil hospitals shall be supplied, where alarming cases of acute mania can be individually and scientifically treated, with that attention of the best medical skill which such patients do not always obtain under present methods; and, secondly, the true asylums, for the *chronic* insane, not always *incurable*, as modern experience has proved, whose cure, however, must depend in large measure upon the true use of non-restraint and of bodily employment. In looking over the annual reports of Pennsylvania institutions, there is one bearing the style and title of "Asylum for the Relief of Persons deprived of their use of Reason," while over the others, the title is written "Hospital for the Insane." As at present conducted no difference in the management or objects of these differently named establishments can be discovered, but, in the near future, let us hope the time will arrive, when the *name* will indicate the *thing*. In that day may we expect to find both the hospital and the asylum doing beneficent work, under some such efficient governmental oversight as the English institutions now enjoy, and with some such scientific reputation as *they* have been earning by true scientific work. In that day we will have our Crichton Browne, our Herbert Major, our Mickle, our Connolly, whose contributions to the pathology of insanity and its medical management will not be less satisfactory or valuable than their administration of the hospitals.

II.—Administration.

Finally we conclude this criticism by noting the defective organization of American insane hospitals.

Without any central supervision, every local board of trustees does what seems good in its own eyes. No regular system controls all the State institutions; the most diverse policy may be carried out in the different hospitals of Pennsylvania.

Next, we find the superintendents having to direct the multifarious details of business management, the financial arrangements, purchase of supplies, farming of hospital lands, and all other duties

which fall upon an executive head, besides being physician-in-chief and responsible for the entire care of the sick.

"No man can serve two masters." Either the professional or the business interests of the hospital must suffer. As it has been wisely and wittily remarked: "It is possible for medical superintendents to manage large boarding-houses, but not at the same time to keep a medical biography of the boarders!"

Practically the business interests do not suffer, but the scientific and personal study of insanity and the insane must be committed mainly to the assistant physicians.

But it is with respect to the assistants that the insufficiency of hospital organization is most plainly felt. Instead of being engaged in learning how to treat the patients, by receiving from an experienced visiting physician a diagnosis to guide them and a treatment to carry out, as is done in civil hospitals; these resident assistant physicians are put in full charge of the wards, and manage the most delicate and varied cases of insanity, under a superintendent too busy to instruct them clinically and systematically, and often without any means being furnished them to instruct themselves.

For the assistant physicians are not appointed by competitive examination in neurology or general medicine. They are young men, recent graduates from medical schools, who have never served in civil hospitals, nor been engaged in general medical practice. Untrained and inexperienced when appointed, without any special fitness, they must acquire the ability to perform their most responsible duties *by performing them.*

In number they are far below the requirements of a general hospital service. In our State I find that the Norristown Hospital with 546 patients has two chief and two assistant physicians; the Harrisburg Hospital with 426 patients has two assistants; the Western Pennsylvania Hospital with 600 patients has three assistants; the Danville Hospital with 450 patients has two assistants; the Pennsylvania Hospital with 400 patients has three assistants.

How can these assistants find time to study their specialty, and qualify themselves for the position of superintendents hereafter? It is surely impossible with the necessity of seeing daily to the care of from one hundred to two hundred patients; nor can they even remember the essential points in the history of each of them. Alas for these overworked and inexperienced young men; the victims of a miserable system of affairs, which we cannot too speedily do away with. Radical changes must be made ere long. First of all, the superintendent should be relieved from all the distraction of business affairs, and enabled to attend to his own proper business of

treating insane patients. His appointment should be made on account of distinguished eminence in the study and treatment of nervous diseases, and he should not be required to leave his special function to perform the duties of a hospital steward, any more than the Apostles of old could "leave the word of God, to serve tables."

Next, he should be responsible for training his assistants by lectures, by clinical teaching, and by directing their studies in cerebral anatomy and in mental pathology. Let it be understood that the State must furnish the means for making these institutions training schools in mental medicine. Money must be furnished to improve the subordinate medical service, and to supply books, instruments, and other means of education, so that a few years spent in insane hospital work may send out into the community physicians who are fitted to detect and treat successfully at home the earliest stages of nervous and mental maladies; whose neglect now helps to fill asylums with hopeless maniacs.

Finally, in hospitals for acute cases, the proportion of assistant physicians must be one to every fifteen or twenty patients, so as to afford time for clinical scientific study and individualized treatment. They should be appointed after a competitive examination. They must be sufficiently numerous not to be overworked, and they should not be underpaid.

If you cry out against the expense, is it not better to appropriate money in furnishing means of cure and of medical supervision, rather than to expend it in architectural adornments and grand buildings for the neglected inmates of "palace asylums"?

I will not here do more than allude to the great benefit, both to the patients themselves and to the medical profession, to be obtained by the appointment of a board of consulting physicians to every insane hospital.

That consultations should be held, even with private physicians, at the request of friends and guardians of the insane is a desirable measure, and in Europe it is often provided by statute that such consultations shall not be refused.

A beginning has been made at the Norristown Hospital; such consulting physicians being appointed from eminent neurologists and practitioners of Philadelphia. The success of this new departure will be earnestly hoped for, and the adoption of the measure urged upon the other State institutions wherever practicable.

One more thought must be uttered, before I leave this subject to the quiet consideration of the future. "What should be done with the convalescent insane?" A question which long ago has been answered in England, with the practical wisdom shown in her

entire system of insane management. In that country all public asylums have their convalescent wards, which are often placed at a distance from the main building, and are made as home-like as possible. In them the restrictions of asylum life are greatly relaxed, but not altogether removed. Their inmates are to a large extent on probation and parole, but still are made to feel that some authority is exercised over them.

In a few private asylums the convalescent home, or branch, is many miles away from the asylum, at the seaside or in the country, and has no intercourse with it, except that it is visited by the asylum medical officers.

Amongst the insane of the upper and middle classes, where convalescent homes are not available, or are not resorted to, the advantages which they offer are obtained by sending patients who have recovered, to sojourn in a hydropathic establishment, or to board in the family of a medical man, for a few weeks or months before returning to their own households and ordinary pursuits.

For paupers the convalescent branch of the asylum does what is necessary, especially in combination with the excellent system of discharging patients on trial. The visitors of an asylum may permit any patient to be absent on trial, for such period as they may think fit, and may make an allowance of money to such patient, during his absence on trial, in any sum not exceeding what would have been charged for his maintenance in the asylum during that time. Under this provision, patients are constantly being discharged from the county asylums for periods of one, two, or three months, with varying allowances, up to ten shillings per week. Should they break down, or relapse, during the period of trial, they are liable to be sent back to the asylum, without fresh certificates or formalities of any kind, and the knowledge of this fact is in itself a safeguard, and conduces to self-control, and propriety of conduct. At the end of their period of trial they have to report themselves to the asylum medical officers, when they are either discharged finally, remitted to another period of probation, or taken back into the asylum, as their condition may warrant. The allowance which they receive maintains them while they are looking for work, which it is not always easy for a discharged lunatic to obtain at once, and insures to them a sufficient supply of food; so essential a condition of sustained convalescence.

The statements here given are copied from a private letter of Dr. J. Crichton Browne, to our distinguished associate, Dr. S. Weir Mitchell, of Philadelphia. They are prefaced by the following:—

"Your project of establishing convalescent homes in connection

with lunatic asylums in the United States, is an admirable one, and I am indeed surprised to learn that nothing of the kind has been hitherto attempted in your country. Insanity, when recovery from it takes place, almost invariably leaves behind it, for a time, a mental weakness and irritability that ill brooks immediate and rough contact with the work-a-day world. Relapses not infrequently occur because the still morbidly sensitive and unsettled mind is suddenly emancipated from restraint and discipline, and plunged amongst old associations or new trials. An intermediate or transitional stage, interposed between the asylum wards and home or business, spares much suffering, and confirms many weak-kneed convalescents in well-doing."

With these words I conclude my subject, trusting (nay, fully believing) that whatever in the management of the insane is now imperfect, ill-advised, or unprovided, will be so revised and so remedied in the future by the good sense and the good will of all, that the American system shall become at no distant day our glory instead of our reproach; and, that as we now have to study European methods for our instruction, so then shall foreign physicians feel obliged to visit our shores, to become students of American methods in mental medicine.

TREASURER'S REPORT.

THE undersigned, Treasurer of the Medical Society of the State of Pennsylvania, begs leave to submit the following annual report:—

The balance on hand May 20, 1880, was one thousand three hundred and seventy-one dollars and sixty-seven cents ($1371 67). There was received during the year from all sources, two thousand and fifty-six dollars and seventy-six cents ($2056 76). During the same time the expenditures amounted to two thousand and twenty-three dollars and thirty-six cents ($2023 36), leaving a balance on hand of fourteen hundred and five dollars and seven cents ($1405 07).

The annexed statement of receipts and expenditures will show in detail the sources from which the receipts were obtained and the objects to which the expenditures have been applied.

All of which is respectfully submitted.

BENJAMIN LEE,
Treasurer Med. Soc. State of Penna.

The following named County Societies are in arrears:—

Bedford County Medical Society, dues of 1880	$15 00
Beaver County Medical Society, dues of 1880	19 20
Bradford County Medical Society, dues of 1880	9 00
Franklin County Medical Society, dues of 1880	36 00
Lehigh County Medical Society, dues of 1878	10 00
" " " " 1880	16 50
Total amount of delinquency	$105 70

LANCASTER, May 12, 1881.

STATEMENT OF RECEIPTS AND EXPENDITURES.

RECEIPTS.

From balance on hand May 20, 1880		$1371 67
" 6 County Societies for dues of 1879	$164 80	
" 41 County Societies for dues of 1880	1881 87	
" sale of Transactions of 1879	4 84	
" sale of Transactions of 1880	3 00	
" interest on deposit in Fidelity Trust and Safe Deposit Company	2 25	
		2056 76
		$3428 43

EXPENDITURES.

For expenses of Committee on Report of Censors in case of Dauphin County Society		$43 76	
" expenses of Dr. Alex. Craig, member of same Committee		3 03	
" expenses of Committee of Arrangements for meeting at Altoona		79 77	
" salary of Dr. Wm. B. Atkinson, Permanent Secretary		300 00	
" printing and distributing Transactions of 1880	$1423 68		
" printing 1500 copies Constitution and Code of Ethics	80 55		
" printing circulars, etc.	18 25		
" postage and envelopes—bill of T. K. Collins	72 83		
	$1595 31		
Less discount	75 88		
		1519 43	
" expenses of Treasurer in attending meeting at Altoona		21 37	
" expenses of Dr. Wm. B. Atkinson, Permanent Secretary (travelling and office)		38 00	
" expenses of Committee on State Board of Health (folding and directing envelopes)		9 00	
" expenses of Treasurer (express, postage, etc.)		2 00	
" expenses of Dr. J. W. C. O'Neal, on Committee on Report of Censors in case of Dauphin County Society		7 00	
Balance due the Society May 12, 1881		1405 07	
			$3428 43

Audited, compared, and examined vouchers, and found correct.

J. AUG. EULER,
JOHN CURWEN,
J. L. STEWART.

REPORT ON MEDICAL LEGISLATION.

By R. LOWRY SIBBET, M.D.,
CARLISLE.

Mr. President:

The Committee on Medical Legislation beg leave to report that petitions from the profession and the people were presented before our Legislature during the early part of the present session, that copies of the last report of this Committee in pamphlet form were laid upon the desks of the members of both Houses, and that a memorial was prepared and in like manner distributed. It reads as follows:—

To the Honorable, the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met:

The undersigned memorialists, being the officers, the permanent members, and the delegates at the last meeting of the Medical Society of Pennsylvania, respectfully represent, that the act, approved March 24, 1877, entitled "An Act to Protect the People of the Commonwealth against Incompetent Practitioners of Medicine, Surgery, and Obstetrics," has failed to accomplish the important objects aimed at.

The Legislature of the State of New York, at its last session, passed an act requiring all persons who practise medicine or surgery to register in the office of the clerk of the county in which the practitioner resides. In like manner the Legislature of the State of New Jersey, at its last session, passed an act requiring each practitioner to file a copy of his or her medical diploma in the office of the clerk of the county, and on failure of this to abandon the practice of medicine.

What your memorialists especially desire at present is, that an act may be passed which shall provide for the registration of all practitioners of medicine, irrespective of the so-called schools of practice, as in all European countries, the Canadian provinces, the South American States, and in some of our own States. Experience

has shown that incompetency, deception, and fraud can be more easily prevented by this means than by any other. The legal profession, after an examination, requires all its members to register under oath or affirmation, and there appears to be no good reason why provision should not be made for the medical profession in Pennsylvania.

In conclusion, your memorialists beg leave to ask your attention to the Report of the Committee on Medical Legislation, read before the Medical Society at its last meeting. And we will ever pray, etc. etc.

Copies of this memorial were sent to the secretaries of the several county societies here represented, with instructions to take such action as might seem proper; and the same was printed in the *Medical and Surgical Reporter* of Philadelphia.

The following bill, which had been passed around from one member of the Committee to another, and had been inspected and amended by several attorneys-at-law, was placed in the hands of Hon. W. B. Roberts, who introduced it into the House of Representatives. It is entitled

AN ACT

To Provide for the Registration of all Practitioners of Medicine and Surgery.

SEC I. *Be it enacted, etc.*, That the prothonotary of each county shall purchase a book of suitable size to be known as the Medical Register of the County (if such book has not been purchased already), and shall set apart one full page for the registration of each practitioner: and when any practitioner shall depart this life or remove from the county, he shall make a note of the same at the bottom of the page, and shall perform such other duties as are required by this Act.

SEC. II. Every person who shall practise medicine or surgery or any of the branches of medicine or surgery, or shall receive or accept for his or her services as a practitioner of medicine or surgery any fee or reward, directly or indirectly, shall be a graduate of a legally chartered medical college or university, having authority to confer the degree of Doctor of Medicine (except as provided for in section five of this Act); and such person shall present to the prothonotary of the county in which he or she resides or sojourns his or her medical diploma as well as a true copy of the same including the endorsements thereon, and shall make affidavit before him that the diploma is genuine. Thereupon the prothonotary shall enter the fol-

lowing in the register, to wit: The name in full of the practitioner, his or her place of nativity, his or her place of residence, the name of the college or university that has conferred the degree of Doctor of Medicine, the year when such degree was conferred; and in like manner any other degree or degrees that the practitioner may desire to place on record, to all of which the practitioner shall likewise make affidavit before the prothonotary; and the prothonotary shall place the certified copy of such diploma and endorsements on file in his office for inspection by the public.

SEC. III. Any person whose medical diploma has been destroyed or lost shall present to the prothonotary of the county in which he or she resides or sojourns a statement of this fact together with the names of the professors whose lectures he or she attended and the branches of study upon which each professor lectured; to all of which the practitioner shall make affidavit before the prothonotary; after which the practitioner shall be allowed to register in manner and form as indicated in section two of this Act, and the prothonotary shall place such certified statement on file in his office for inspection by the public.

SEC. IV. Any person who may desire to commence the practice of medicine or surgery in this State after the passage of this act, having a medical diploma issued or purporting to have been issued by a college, university, society, or association of men in another State or foreign country, shall lay the same before the faculty of one of the medical colleges or universities of this commonwealth for inspection, and the faculty, being satisfied as to the genuineness of the diploma, shall direct the dean of the faculty to endorse the same. The applicant shall pay to the treasurer of the institution ten dollars, and the treasurer shall write a receipt for the same on the back of the diploma; after which such person shall be allowed to register as required by section two of this Act.

SEC. V. Any person who has been in the continuous practice of medicine or surgery in this commonwealth since 1871 without the degree of Doctor of Medicine shall be allowed to continue such practice, but such person shall nevertheless appear before the prothonotary of the county in which he or she resides, and shall present to him a written statement of these facts to which the practitioner shall make affidavit; thereupon the prothonotary shall enter the following in the register, to wit, The name in full of the practitioner, his or her place of nativity, his or her place of residence, the time of continuous practice in this commonwealth, and the place or places where such practice was pursued, to all of which the practitioner shall likewise make affidavit; and the prothonotary shall

place the certified statement on file in his office for inspection by the public.

SEC. VI. Every practitioner of medicine or surgery who shall be admitted to registration shall pay to the prothonotary one dollar, which shall be compensation in full for such registration, and the prothonotary shall give a receipt for the same.

SEC. VII. Any practitioner who shall present to the faculty of an institution for endorsement, or to a prothonotary, a diploma which has been obtained fraudulently, or is in whole or in part a forgery, or shall make affidavit to any false statement to be filed or registered, or shall practise medicine or surgery without conforming to the requirements of this act, or shall otherwise violate or neglect to comply with any of the provisions of this act, shall be deemed guilty of a misdemeanor, and on conviction shall be punished for each and every offence by a fine of One Hundred Dollars, one half to be paid to the prosecutor, and the other half to the county, or be imprisoned in the county jail for a term not exceeding one year, or either, or both, at the discretion of the court.

SEC. VIII. Nothing in this act shall be so construed as to prevent any physician or surgeon legally qualified to practise medicine or surgery in the State in which he or she resides from practising in this commonwealth, but any person or persons opening an office or appointing any place where he or she may meet patients or receive calls shall be deemed a sojourner, and shall conform to the requirements of this act.

SEC. IX. This act shall take effect on the first day of June, one thousand eight hundred and eighty-one.

It will be noticed that this bill combines the essential features of the New York and New Jersey laws, to which reference has been made. It requires the practitioner to file a copy of his or her diploma, or a certified statement when the practitioner is without a diploma. It requires in addition strict and proper registration in the office of the prothonotary of the county as the most convenient means of securing statistical information. It makes the degree of Doctor of Medicine an indispensable qualification in the future; and the faculties of our medical schools are made the judges of the fitness of the practitioner. In this way, the prejudices arising from sectarian medicine are allayed which so much interfere with our efforts to secure efficient legislation.

This bill after several unimportant changes passed the House of Representatives, and has been reported favorably by the Senate Committee. Hon. Joseph Thomas, M.D., to whom the profession is

much indebted for valuable services, writes that it is now on second reading, and will no doubt pass the Senate if the State Board of Health bill in the House should fail.

In this connection we may be allowed to refer to the efforts of the Philadelphia *Record*, since our last meeting, to expose and suppress the bogus medical schools which have brought so much disgrace upon our commonwealth and our profession. The Legislature of 1872, though laboring faithfully through its committee, and bringing to light many startling facts, nevertheless failed to suppress the iniquitous traffic in diplomas; and to this enterprising journal must be given the credit of fearlessly undertaking what it seems was not in the power of our Legislature or profession to do. We are all familiar with the extraordinary means which it was necessary to make use of in order to suppress the traffic and to bring the guilty pretenders and charlatans to justice. The chairman of this committee embraced an early opportunity to thank the editor of the *Record* for the course he had adopted in relation to these pretentious institutions, and it remains for this society to express more fully, by resolution or otherwise, our appreciation of the valuable services thus rendered to the profession, especially in Pennsylvania.

As further evidence of the interest this journal has taken in the elevation of our profession, a bill entitled "An Act to Regulate the Practice of Medicine, to establish a State Board of Health, and to make an Appropriation therefor," was prepared under the direction of the editor, and introduced into the Senate after the bills prepared by the committees of this society had been introduced into the House of Representatives. This bill possesses many excellent features, and, if it passes without mutilation, cannot fail to give new life and vigor to our profession.

Reviewing the work which your Committee have attempted to carry forward during the last eight years, we need scarcely do more than refer to the change of sentiment that has taken place in relation to this subject. At first there was opposition expressed and felt in every community. To circulate petitions cost some of us the good wishes of our friends; to interview a representative was hazardous; to find one who would introduce a bill was difficult. The fact is, the subject was, and in some places is still, unpopular. Speeches were made in the Senate against legislation of any kind, in which some of the members of our profession participated. Bills were mutilated, so as to become useless after approval by the Governor. The act of 1875 was a noted instance of this kind. Failure after failure resulted, and your Committee were ready at times to abandon the work.

At present, however, the out-look is much more cheerful. By petitions, memorials, and reports, again and again presented before our Legislature and this society, the people have been reached. Some of these have appeared in the public journals, and have, no doubt, produced good results. We have not only educated ourselves by these means, but the people are beginning to learn, by our unselfish and disinterested labors, that we seek only the welfare of the profession and the public good. It would afford us great pleasure to announce the final passage and approval of one or both of the bills now before our Legislature; but this must be reserved for another occasion.

In conclusion, your Committee desire to recognize the valuable services of the members of the profession in our Legislature, especially those connected with this society, among whom may be mentioned Dr. E. A. Wood and Dr. M. A. Arnholt of Allegheny, Dr. P. J. Roebuck of Lancaster, Dr. J. Weist of York, Dr. P. C. Newbaker of Montour, and Dr. W. B. Erdman of Lehigh.

All of which is respectfully submitted.

TRAILL GREEN,
HIRAM CORSON,
JOHN L. ATLEE,
BENJ. LEE,
C. A. RAHTER.

ADDRESS IN SURGERY.

By S. M. ROSS, M.D.,
ALTOONA.

There is a subject attached to my name in the recorded Transactions of the State Medical Society at its last annual session in which I feel deep interest, and which prompts me now to attempt the performance of the duty assigned me by the worthy presiding officer of that session. I am prompted, not from a sense of competency, not because of extensive reading and compilation of authors, but from some experience and observation in the practice of surgery.

We all want to deserve the name of conservative surgeons. The time for heroic surgery, apart from the prolongation of life, has well nigh passed away. If there is any operation which would justify the appellation, it is ovariotomy. But even there circumstances modify, and time changes our views in regard to it.

We remember very well when the great body of our profession regarded it as cold-blooded butchery, so nearly allied to murder, that we would say amen to the justice that would incarcerate the perpetrator in the same cell with the homicide; but, thanks to our profession, through the consummate skill and courage of a McDowell, an Atlee, a Wells, and a host of others, whom want of time forbids us to name, the operation has been lifted from the opprobrium of the slaughter house and enrolled in the catalogue of triumphant conservative surgery. A host of victims of ovarian tumors are living witnesses to the success of ovariotomy. You see that it is hard for us to define what we mean by conservative surgery, and that it is only applied to successful operations, so that, in a limited sense, conservative and successful surgery are synonymous. Ovariotomists were reproached thirty years ago, for what they are now highly commended.

These changes encourage us to hope, and predict in the revolution of another thirty years our successors will perform hysterotomy with the same success that has attended ovarian operations, and thus relieve the miseries of a large class who are now hopeless suf-

ferers. We have lately wondered why, as conservators of life, our attention has not been more directed to the performance of this operation, instead of letting such patients perish before our eyes. Why should we be so loath to attempt the removal of an organ which has ceased to perform its functions, and has become the nucleus of diseases which can only be cured by its extirpation? Hysterotomy is intended to relieve suffering and prolong life, and though now looked upon as formidable, whenever skill and perseverance have made it a success, it will be classed among the operations of true conservative surgery.

Let us turn our attention to some classes of operations to give our remarks a pratical bearing. Plastic surgery, for instance. Here we strive to relieve deformity or restore the part to efficiency and usefulness, and in doing so we rob and cripple another part to cure the part affected. The question to be settled is, is it true conservatism to maim or cripple one part to cure any other part? And then the question of success comes in for a share of the responsibility, for the operations are often failures. And further, is there a necessity for it? For instance, in the contractions of a cicatrix from a burn, when the contractions are divided and the parts restored to their normal positions and relative functions, resulting in a wide gaping incision, why not let, or encourage nature to fill up the opening by granulations and new skin? Will not the opening made by your robbery be as hard to close as the one by the first incision? and, if it fail to unite, you have two unhealed surfaces. I knew a very honorable and efficient member of our profession who attempted to make a new nose for his patient by a flap dissected from the patient's forehead. No union took place, and the patient had no nose, and no skin on his forehead. Again, would you cover the stump of an amputation with bruised skin to save two or three inches of extremity, and trust the *vis vitæ* to throw off the diseased tissues and cover the denuded bone with new and healthy tissues?

How many of us are willing to bear the responsibility of a failure and face the opprobrium of a re-amputation? I have a case in point. J. K., æt. 21, was run over by the tender of a locomotive while he was intoxicated, crushing both feet; eighteen hours after, reaction set in; and, assisted by Dr. C C. Miller, of Galitzin, Cambria County, Pa., I amputated the right leg two inches above the malleoli, in sound tissues, and in three weeks it was healed with an ex ellent stump. I was about to serve the other leg the same way, and at the same place, when the entreaties of his mother, and her avowed willingness to exempt me from all responsibility in an unfavorable issue, induced me to cut through the intertarsal articula-

tion, leaving one row of tarsal bones, the astragalus and os calcis. These were all the sound bones left of the foot, and I had nothing but fragmentary bruised skin with which to cover the stump. The flaps did not slough off for five or six days afterwards. Healthy granulations sprung up, covering the protruding bones, in three weeks, and in three months new skin covered the granulating surface and formed a very useful stump. He wears a shoe on this fragment of a foot with the toe of the shoe stuffed with cotton; and with an artificial leg on the other stump, and a cane, he walks with a slight halt, as some of you can testify who were present at the last session which met in Altoona.

If I had amputated at the place of election, he would, most likely, have been well in three weeks, and I certainly would have done so if the mother had not volunteered to assume and bear all responsibility; for the case was too unpromising to expect a good result from any amputation lower down. Neither do I claim any credit for saving so much and so useful a part of the limb. It was the mother's endorsement that saved it from the boneyard, and, to-day, in the mother's estimation, it is the most precious part of his body. I have only to say that it taught me a lesson which I reduced to practice in the next operation which I performed about a year afterwards at the same village of Bennington, Cambria County, upon a boy 16 years old, named A. S. Wilt. He was run over by seven or eight loaded cars of a moving freight train. Both legs were run over, and the bones were crushed to within two inches of the knee-joint. The skin was badly bruised and lacerated. His paroxyms of pain, and piercing cries admonished me that tetanus would surely supervene. Armed with a Gross's pocket case of instruments, without any professional assistant, I improvised two Spanish tourniquets with a strip of new muslin tied around each thigh, and a stick twisted into the band to tighten. I anæsthetized my patient and amputated both legs at the knee-joint, leaving the patella, and using the damaged skin with which to cover the stumps. The bruised skin sloughed off, and *pari passu*, healthy granulations were deposited upon the denuded condyles. The first granulations were upon the crucial ligaments, and in the course of three months the stumps were covered with flesh and skin, and he lives to-day with two good stumps and each femur entire.

The thing that seemed most astonishing was the fact that the entire condyles were denuded of skin for three weeks, and yet there was no exfoliation or necrosis. The cartilage lost its lustre, and changed from a yellowish to a light rose or reddish tint near the border of the granulations, and advanced as the new flesh proceeded

to cover the uncovered bone. It was wonderful to see the *vis conservatrix* that held such a surface of exposed bone from disintegration for three weeks. Is it because it was covered with cartilage? We are mostly afraid to expose any serous membrane to the air, since it is so liable to inflammation. Experience seems to tell us that sawing off the condyles and thus removing the serous structure would not have secured any sounder stump, and it would have been with the loss of an inch and a half to two inches of the length of the femur. Now while the operation secured more length to the thigh, it also facilitated the formation of new flesh, for the first granulations made their appearance on the crucial ligaments, and next on the cartilage, beginning with the softer and proceeding to the harder tissues in its process of repair.

The former amputations encouraged me to trust to the recuperative power of nature in the latter. Was I justifiable in thus trusting? The operation was successful and there is nothing so convincing as success. According to the rule of amputating high enough to secure sound flaps my patients would have lost several inches of the most useful part of their limbs, being much more crippled, and would have carried this stigma upon our profession while they lived.

The point I wish to make is, we are too unwilling to trust the powers of nature to restore injuries. Another, that skin grafting opens a wide field for further trial and experiment.

Nature's process is very slow; what can we do to hasten it?

It may be objected that these unsound flaps may cause absorption and blood-poisoning. This danger can be averted by after-treatment: loose bandaging, frequent dressing, free application of hot water, and good drainage. There is no danger with such treatment, and for another reason: the tissues in question are on the outside, and separated by the operation from any direct connection with the absorbent vessels of subjacent tissues, and so accessible to antiseptic dressings and cleansing ablutions that no pus remains in the wound, which is the great prerequisite for septic infection.

Now we insist, brethren, that we cannot be too frequently warned against the danger of tight bandaging. It is the prolific source of sloughing, pyæmic absorption, and traumatic erysipelas.

In a practice of medicine and surgery for thirty years under our own observation, it has done more harm (my own cases included) than all other causes combined. In a laceration with severe contusion we cannot too fully appreciate the feebleness of the circulation, how little obstruction will arrest it, and how diligently we should promote it. After years of surgical teaching and practising, the tightening of an adhesive strap, or a little too much tension on a single

turn of the roller, may do the very mischief we so much deprecate, and cause the death of our patient, or produce such suffering as words cannot express or sympathy redeem. I saw such a case some four years ago, where such sloughing took place from a neglected unslacked tourniquet, as to render the life of the patient hopeless for two weeks. The boy got well in spite of the doctor and nurses after a confinement of four months.

A great difference of views exists, and a great many doubts are expressed by members of our profession, in regard to Prof. Lister's antiseptic treatment of wounds by carbolic acid and exclusion of air. A Western skeptic predicts that twenty years in the future will demonstrate to us that there is nothing in it. This is surely an underestimate, and is but the result of an overestimate of its efficiency. We too are apt to rush to extremes and call a remedy good for everything or good for nothing. We should ever make the extremes equal to the means. The different experiences and conclusions of our best practitioners should bring us down to a close scrutiny and impartial analysis of the principles which underlie the different modes of treatment, and lead us to the sameness upon which our differences are based, and thus make us a harmonious and united body in discarding the bad, and upholding the good, in all our different plans of treatment. We all agree that pure air, proper temperature, rest, cleanliness, and appropriate diet are the great conservators and agents in nature's process of repair; and any and every plan of treatment which applies these principles stands upon a common platform, and the respective advocates can meet in common council to promote the same object. Allow me to state a corroborating incident. After the battles which preceded the second Bull Run fight, the battle-fields were inaccessible to our army, and the wounded were left upon the field for a week. Some of them were brought to hospital nine days after they were wounded and every one of them got well, while the wounded from the Bull Run field died like rotten sheep. The former had plenty of pure water, pure air, and healthy diet. The latter were too much crowded to receive such treatment, hence the difference in the result. So Altoona, in its altitude and healthy surroundings, affords these remedies without carbolic spray or mechanical hygienic processes.

Allow me, brethren, to record one more case which was very unpromising at the beginning but made a good recovery. The operation was conservative in a general, and the result in a very special sense. J. G. K. was stabbed by an intoxicated maniac. By a plunging stroke, the knife entered the abdomen about midway on a straight line drawn from the umbilicus to the anterior superior

process of the right ilium. Twelve or thirteen inches of the jejunum protruded through the orifice, and there was an opening into the bowel of an inch and a quarter, through which the half digested ingesta were slowly oozing out.

There were two other openings of a quarter of an inch each. I emptied the protruding bowel through the large opening, closed the three orifices with a fine needle and white silk thread, and clipped the thread off close to the knot. In attempting to return the bowel into the abdomen the sutures of the largest opening gave way. I renewed the stitches with the same result, but enlarging the gap. I then ran a thread through the edge of the intestine at the orifice, returned the bowel into the abdomen, holding the thread so as to keep the intestinal orifice in the abdominal opening. I stitched the intestinal to the inner edge of the abdominal orifice, and closed the parietes with suture-pins and silk ligatures. The third day revealed signs of erysipelatous inflammation. I removed the pins and an artificial exit was the result.

Alvine passages soon established themselves, also *per vias naturales*. In two months the orifice closed entirely. It is six years since, and the patient, a married man of thirty-five, is quite well, only complaining of a sense of constriction when he is digesting bulky food, or lifting a heavy weight, showing its adhesion to the abdominal wall and a lessening of the calibre of the intestine. The opening was too high up for solid or fecal contents. The hepatic secretion was the first to discharge and the last to disappear.

This short paper is humbly offered to the profession, not as a protest against operative surgery, but as an encouragement to due deliberation and attempts to save structures, even denuded of skin, if the deeper-seated structures are sound. In all of which, brethren, I am sure we will have the approval of a good conscience and the lasting confidence and gratitude of our patients.

ADDRESS IN MENTAL DISORDERS.

By S. S. SCHULTZ, M.D.,
DANVILLE.

No doubt one of the chief purposes of these annual addresses on various branches of the science and art of medicine, should be to present a concise history of the progress that had been made during the year, accompanied with such critical remarks as may suggest themselves, as to the real value of what has been gained. It is thus that the fruit of special studies for the year or a lifetime of one, may become the possession of the many who cannot in the nature of things devote the same attention to many subjects. While I believe this to be the rule, there are occasions when the proper objects of all medical science, the prevention and cure of disease, and the alleviation of the misery resulting from it, can be better secured by taking another course. I shall therefore at once present a few thoughts relating to the care of the insane, on which I cannot but feel that public sentiment is in danger of going astray, innocently becoming the occasion of injury to a most righteous cause.

Insanity is universally looked upon as such a serious calamity, as to entitle the victim of it and his family or dependents to a greater amount of sympathy and aid than are accorded to the sufferer from a disease whose symptoms are chiefly bodily. The clear mind and absence of delirium are always a great mitigation of the severest illness, and no one can look with composure upon the opposite condition, in the mildest ailment, until long familiarity has hardened him to it. The reason for this is easily found; man is what he is because he is endowed with mind, what pre-eminence he has over the brute he owes to those faculties whose operation is suspended or destroyed by insanity. No other affliction or loss can equal that which, so to speak, degrades him in the scale of being, denaturalizes him, and makes him in many respects not only equal, but often even inferior to the animal creation. We are shocked by the sight of such a transformation, and when the race had once lifted itself out of the not unnatural supposition that such an effect could be produced only by a direct judicial infliction by the Supreme

Judge, of unusual punishment for aggravated crimes, then the feelings of pity and sympathy begin to displace those of satisfaction at outraged law being vindicated.

The gravity of the disease is greatly enhanced by the fact that it often exists in its early and undeveloped stages, misunderstood for months and years, and that during this time the capacity to take care of property, to manage business, and to provide for the family are greatly impaired, and hitherto unknown want and suffering are experienced, and this all the result of disease before its existence is known or measures taken for its cure. Foolish enterprises, visionary schemes, unreasonable expectations which were never thought of or entertained before, and whose true character is seen only by the lurid light of subsequent events, waste the scanty supplies of the humble home, before the true character of the struggle is recognized.

Another feature is the transformation of the moral character of the victim of this disease. It turns love into hatred, truthfulness into falsehood, confidence and trust into suspicion, tenderness and affection into harshness and abuse. In aggravated cases it brings him into collision with the officers of the law, whose penalties, adjudged under solemn forms, but none the less unrighteously, are visited upon him. If he had remained well he would have continued to be a respected useful neighbor, a patriotic citizen, a faithful husband, a kind indulgent father, and an honest truthful man; but he became sick, as all are liable to become sick, and on this account alone, so far as he is responsible, his name becomes a by-word, and his memory is handed down as a warning to evil-doers. Of course such cases are not as frequent as they used to be, but we cannot yet, unfortunately, cast all their reproach upon our forefathers, or upon half-civilized nations, or upon other countries.

Those diseases which lie at the foundation of insanity, as a class, are slow in their development and subsidence, when compared with those which are less intimately connected with the central nervous system, and whose symptoms are chiefly bodily. It is therefore characteristically a chronic disease, and the burdens which it imposes upon individuals, families, and neighbors, might be borne more often successfully, were it not that they have to be borne so long. The course of the more usual disease is so short that the difficulties arising from the loss of time and money may often be tided over with or without such help as is accessible to all.

No one, of course, needs to be informed that insanity makes its appearance in persons in whose antecedent history or relationships no trait could be found to justify the expectation of such an event.

It comes out of a clear sky. But much more often, and more frequently than in other diseases, there is at its foundation an hereditary taint whose baleful influence casts its shadow with varying intensity over other members of the family. Were only one ill, and all the others of the family whole, the battle would be more even handed; but when those who should assist are themselves on the side of the enemy, we need not wonder that the day is so often closed in gloom and darkness, and the first victim caries all down with him, in one common wreck of poverty and helplessness.

One of the most painful incidents, that occur in the course of the disease, is the frequent necessity that the patient should be separated from near relatives and acquaintances and placed among strangers. This does not occur alone or chiefly because needful appliances may be more readily secured in a hospital, for wealth may command these in any place. Nor when the superiority of hospital treatment is insisted upon is it placed on the pretended ground that there alone can be obtained the requisite medical skill. This man of straw is sometimes set up, but the arrogant assumption has never been made or entertained. The reason of it is that the nature of the disease is such, that the mere presence of the husband or wife, brother or sister, business partner or neighbor, becomes an irritant, which neutralizes the best contrived plan of treatment. Even the ill-advised visit to the patient of a person bearing such a relation to him, however sincere and ardent the affection which prompts it, may undo in an hour what has been gained in a month. Hence, it is often the first and most imperative step, without which every other is but a retrograde movement, that the invalid should be removed from familiar scenes and faces, and placed among those which have been hitherto unknown. This often becomes the severest trial.

We have then the following accumulation of characteristics peculiar to this disease, to which in a great measure it owes its serious nature:—

The loss of mind, and consequent loss of control of self, of property, and business.

Its frequent existence for a long period in an undeveloped and unrecognized form; working mischief in the dark.

Its alteration of the moral character and its effect, the violation of law and resulting punishment.

Its very slow course.

Its affecting in varying degrees several members of the same family.

The requirement for its successful treatment of separation from friends and removal from home. And yet these are only the external phenomena which present themselves to the observer and are

as nothing compared with the extent and variety of the mental torture experienced by the unfortunate victim of the scourge. None can express and he alone can realize the keenness of that anguish which seeks relief in self-destruction or the blood of those most dear and cherished.

We need not wonder then that from such a combination of misfortunes, most of which are usually indicated by the word insanity, there should spring discouragement, sooner or later despair, and ultimately, to those in moderate circumstances, irretrievable financial ruin. It was remarked of old that the noblest spectacle was presented by an honest man, struggling with adversity; it might be added that the most pitiable is the gradual dispersion by the invasion of mental disease of the fruits of honest industry and thrift, practised for years by the members of a family. With the strength for execution of the adult, but discretion not that of a child, one need not look far for an explanation of the fact that dependence and the poor-house are so often, if left to his own resources, sure to follow in the wake of his disease and not far in its rear. It is hence that, in half-civilized states even, efforts are made to assist the insane by public charity, so that they may have not only proper chances for restoration, but be protected from themselves and others, and their families and dependents as well as the public secured from harm.

The claim which such helplessness has on the public for succor is now universally acknowledged, and the insane are looked upon as the wards of the State, and in this as in other spheres of benevolent labor the expenditures made from humane impulses have proved to be not always or simply sacrifices. For it has been often maintained, and supported by abundant proof, that many of those who become insane in early life, and who through the want of timely and suitable care remain hopeless invalids, necessarily supported at the public expense, would under more favorable conditions be restored, and, instead of being consumers, become producers of public wealth.

It has been by the presentation to the public and to the Legislature of such views, amplified, illustrated, and enforced by argument and the recital of the needless hardships and brutal treatment endured by the unfortunate victims of this disease, that legislation has been obtained establishing State hospitals for the insane. This society, acting through committees appointed for the purpose, has been largely instrumental in this good work. It may be stated in round numbers that in the five so-called State hospitals there is room for three thousand patients, and that of this accommodation only two-thirds is in use, or that one thousand beds are vacant. The in-

ference has been somewhat hastily drawn from this, that too many hospitals have been built, and that the money put into them has been squandered. I propose to state some reasons which I think prove that this opinion is not well founded. The fact that there are unoccupied beds may be, and no doubt is true, but it does not at all follow that there are too many beds, for those who should occupy them may be improperly deprived of them, or there may not have been time for them to find their way into them. Three of the five hospitals have been so recently completed that it is not certain how long they might be partially vacant, even under the existing laws controlling the admission of patients. Thus, when the Norristown Hospital was opened, it was thought that it might be a long time before all its ample halls should be filled, but it may already be said to be rapidly approaching a crowded condition, and all this in ten short months. While such a rapid filling-up cannot be looked for in the other two new institutions, the course of things in this one has in a general way been the history in the past of every State institution in the land, and may be confidently predicted as the future of every new one. From one you tell all. It is, therefore, by no means certain, because beds are not used to-day that they will not be in demand to-morrow.

But if it were probable, or even certain, that these beds should never be filled in the present order of things, it would still be far from conclusive that the building of hospitals had been overdone.

It would seem at first sight very easy to ascertain the number of the insane in a community or a State, but in reality to obtain statistics on this subject of sufficient accuracy to make them altogether reliable, is a very difficult if not impossible task. While the returns are not yet available of the last census, in which extraordinary pains were taken to avoid errors, we may use other methods to come to an approximation to the truth, as to the number of the insane in this State. By a most careful and painstaking investigation of this kind, whose results have often been quoted as the most accurate that had ever been obtained in any country, it was ascertained in 1855 that in Massachusetts there was one insane person, not including idiots or imbeciles, to every four hundred and twenty-seven of the entire population. If this ratio existed here, there would be ten thousand insane in the State of Pennsylvania, while it would be difficult to assign any reason why the proportion should be lower in this State than elsewhere. Let me in order to avoid all risk of exaggeration assume that there is one insane person to every seven hundred of the general population, and still with our four

and one-quarter millions inhabitants there would be six thousand of this class. In the nature of things a very small number of these can receive hospital care at all unless they receive it in institutions erected and in a great measure maintained by the State; with the most liberal allowance for those who may not need hospital treatment or who may be able to get it outside of State hospitals, there will still be many left out of this six thousand for whom there is no provision in the three thousand beds already established.

If it be held that the usual provision for the insane poor, outside of the State hospitals, is all that is required, there is abundant testimony to the contrary.

First, in the following statement made 35 years ago by a person of unequalled extent of observation and most competent judgment in such matters; a statement which, with its accompanying proofs and illustrations, laid before the Legislature, was very influential in the establishment of our first hospital. It runs thus: "I have endeavored to show you, *first*, that the provision for the poor and indigent insane of your State is inappropriate, insufficient, and unworthy of a civilized and Christian people; *second*, that it is *unjust* and *unjustifiable* to convict as criminals and incarcerate those in prison who, bereft of reason, are incapable of that self-direction and action by which a man is made responsible for the deeds he may commit; *third*, I have in the description of your almshouses, adding the opinion of the most intelligent men in the State, shown that these are in all essential respects unfit for the insane, and that while they may with uncommon care and devotedness on the part of the superintendent and other official persons be made decent *receptacles*, they cannot be made curative hospitals nor asylums for affording adequate protection for the insane; *fourth*, still less can these ends be accomplished in private families, even where pecuniary prosperity affords the means of supplying many wants. But in those where this calamitous malady is united with poverty and pinching want, it is barely within the bounds of probability that the patient should recover." Of course, time has wrought many improvements, but it is to be feared that even at the present time, not a few originals might be found within the limits of our own State, which would serve for pictures in no respect to be distinguished from those there presented.

In the next place, there is proof to the contrary in the purpose and practice of every State in the Union, whose aim is uniformly to bring their insane poor into hospitals, under State supervision and control. Whatever the special method established by law, this is

the end aimed at. Sentiment alone, without the right and reasonableness of the measure, would not secure in so many States and for so long a time a series of enactments which have for their end the removal of the insane poor from poor-houses and jails into hospitals.

Then the recent testimony of the State Board of Charities, one of whose functions is "to visit, look into, and examine" charitable institutions, has an official value, in addition to that which belongs to it as the opinion of representative men from all parts of the State, who have had and who have used unusual opportunities of observation. This is to the effect "that even the best county asylums afford insufficient safeguards for the insane, and that a present fair standard of care cannot be relied on, in view of the changes in economy and supervision liable to occur under different administrations."

In the sixth Annual Convention of the Association of the Directors of the Poor of this State, held at Harrisburg in September of last year, this resolution was endorsed by an almost two-thirds vote. No individuals can have better acquaintance with the masters here referred to, or be, as public officers, more responsible for a judicious and humane treatment of the question, than the members of this convention. They who are called to administer the system can, better than others, speak with authority as to its character. This then is the last point to be referred to as proving that the provision for the insane poor outside of State hospitals is not adequate or suitable.

We have now come to that stage in this discussion, at which the question naturally arises, Why are not the provision for the insane which exists in the empty bed, and the patient who suffers for the want of it, brought together? Why are not the indigent insane, for whom at all hands it is acknowledged that the State is bound to provide, allowed to enjoy the accommodation which it has already made for them?

The daily experience of every hospital readily solves this problem. For the maintenance of those supported at the public expense the law fixes the charge at three dollars per week, which is ordinarily increased from thirty to forty cents for clothing and other incidentals. Many poor districts, both large and small, soon find this such a burden, that the taxpayers compel the officers to throw it off, and the patient, from motives of economy, is removed from the hospital. If he is supported by himself or his friends, to which step, necessity on account of not receiving public aid, or a sense of independence

and of honorable pride, often drives those in very moderate circumstances, the same motives lead to the same result; and the unfortunate victim of the most distressing disease is deprived of treatment such as he requires. It does not meet the case to say that the expense *should* be borne; if it *is* not, the effect to the patient is the same whether the necessity is real or pretended; and concerning its reality there are usually too many evidences to leave room for doubt. It is for this reason then that the hospitals are not filled, *the State charges more for the accommodation which it owns and controls than can be paid for those who need it.* In view of this condition of things, instead of nursing our pride in what has been accomplished for the helpless, we should rather cultivate humility, because the work has not been carried far enough to make it effective; instead of looking into the past with complacency and resting, the State should look into the future with resolution, and gird its loins for what remains to be done.

Now, what this is which remains to be done, may be readily learned from not a few of our sister States. Thus, instead of paying a little more than one-fifth of the maintenance of a patient in the hospital, as is done by the State of Pennsylvania, and leaving nearly four-fifths to be paid by the poor authorities, in Connecticut one-half of this expense is defrayed out of the State treasury, and the other half by the townships. In Ohio the entire cost is met by State appropriations. I refer to these two by way of example.

It would be a mockery to invite a starving beggar to a well-spread table, and then give him access to it only on complying with an impossible condition. That man would hardly be counted charitable who should clothe the naked and feed the hungry, provided they repaid him four-fifths of what he spent upon them, but turned others no less destitute away from his door, unclothed and unfed, because they could repay only three-fifths or nothing at all. Can that institution be called charitable, which in a like manner discriminates in favor of the less needy and the less helpless, and against those especially needing its aid and for whose particular benefit it professes to have been established? If the insane poor are the wards of the State, as has been declared by high judicial authority, how is that State taking care of its wards, which makes by law their very extremity of want a bar to the dispensation to them of its so-called benevolence? Does not every argument which has been employed, and justly employed, for fifty years in favor of the establishment of such institutions, also just as conclusively tend to prove that in some way provision must be made which certainly

secures their benefit to the most needy in the poorest poor district in the State?

Have not the members of this Society and the Society itself, whose record has been so honorable in promoting legislation most fruitful of good in this field, some duty to perform that would complete its work and be commensurate with its powers and opportunities?

ADDRESS IN HYGIENE.

By BENJAMIN LEE, M.D., Ph.D.,
PHILADELPHIA.

The proverb runs, "As well be out of the world as out of the fashion." The fashion of the day in the matter of instruction is "Object teaching." I propose, therefore, to depart a little from the strict routine of an elaborate address and give you an object lesson on *Certain matters connected with the purity of the atmosphere, especially in large cities.*

The subject will naturally divide itself into *the air of the street*, and *the air of the house;* and the air of the house will be considered in reference to, first, *the prevention of impurity*, and secondly, *the restoration of its purity* when vitiated.

First, then: The air of the street.—Less than three weeks since, one of the noblest edifices for religious worship in the city of Philadelphia was consecrated to its sacred use. The vast congregation gathered to do honor to the occasion hung spellbound on the lips of the preacher. Herculean in frame, leonine of countenance, majestic in aspect, his very presence carried force and conviction. Those who listened felt that this was indeed a living man conveying the message of the living God. The sonorous but persuasive tones of his voice were a fitting channel for the ponderous utterances of his logical mind. Four short days passed over the busy city, and that grand form lay still and cold in the embrace of the last enemy. What had so abruptly terminated this valuable life, still so full of vigor and of promise of usefulness? Was it the stab of the assassin—the midnight conflagration—the crash on the iron road? No! none of these—only *pneumonia*—or that which for want of a better name we call pneumonia. But let any man take up a text-book of twenty years ago, any of the text-books which the majority of us studied as students, and see wherein he can find a likeness to the frank inflammation therein described under that title, to the malignant, prostrating, and rapidly fatal typhoidal affection, which has been responsible for the deaths of so many of our citizens during

the past few months? For it is because this case stands not alone, but is a type of a large and rapidly growing class, that I have thought it of sufficient importance to bring it to your attention. Is it possible to account for this almost pestilential disease, and, accounting for it, is it possible to prevent it? I believe that both questions can be answered affirmatively. To account for it let us consider what the citizens of Philadelphia, and to a greater or less extent in proportion to the vigilance or negligence of their health officers, the citizens of every city in the land are to-day breathing, and have been breathing for months past. Any one who will notice the beams of the setting sun, no matter how still the atmosphere, as they come slanting down our narrow streets, will see that they penetrate an air loaded with dust. On a windy day, the smarting eyes, irritated nostrils, and gritty teeth of the unfortunate pedestrian bear witness to the same unwelcome fact. Let us consider for a moment what this dust consists of.

Dr. Joseph Leidy, in a recent communication to a daily paper, pointed out that its main constituents were "fine sand, bits of hay and straw, filaments of cotton from old paper and rags, wood fibres, hairs and scurf scales of man and beast, starch grains, spores, etc."

Among the elements not altogether pleasant to contemplate, which Dr. L. omitted from his interesting category, may be enumerated the eggs of parasites, cells of tubercular matter, and particles of iron in very minute sub-division, derived from the friction of wheel tires, of car tracks, and of horseshoes. By far the larger part of the compound which we call street dust, probably nine-tenths of it, consists of horse manure. During the snow and ice blockade of the past winter, continuing for about six weeks, it consisted of that and nothing else. Now I yield to no man in my admiration for that noble quadruped, *equus domesticus*, but I do decidedly object to being made his latrine. I prefer that before the organic refuse of his body enters mine, it should pass through the refining processes of nature's laboratory, and come to me in the form of cereal or vegetable. You may say that this is a mere matter of sentiment, and that I am over squeamish. Let us look for a moment at the chemistry of the subject, passing by the fact of the various interesting spores, and fungi, and bacteria, that we are drawing in with our vital breath.

All organic substances, vegetable and animal, while decomposing, and especially while decomposing in contact with one another, undergo a process of fermentation, more or less complete according as they are more or less completely protected from the destructive action of oxygen. In this process of fermentation cyanogen is evolved.

This gas is well known as the essential element of hydrocyanic acid and all its compounds. In the presence of a salt of potash it eagerly seizes it, converting it into cyanide of potassium, and if iron also be in contact with it the compound becomes ferro-cyanide of potassium, commonly called Prussian blue.

Now it will be observed that we have in street dust, as I have described it, all the elements necessary for the formation of this salt, and in a state of extremely fine subdivision, only awaiting the presence of warmth and moisture in a confined situation to enable them to combine. These requirements they find in the air cells of the lungs, and I venture to propose the theory that such decomposition and recomposition do take place in this situation, the lungs being temporarily converted into laboratories for the manufacture of Prussian blue.

But this, you may be disposed to assert, is only a fine-spun theory after all. Where is the proof that it has ever taken place? That it has taken place in the human economy, in the lung tissue, or in the blood, I certainly cannot prove, but that it has taken place outside of the body, I have had incontestable evidence. Many years ago, while walking through that desolate bit of wilderness and rock, which has since been transformed as by an enchanter's wand into the lovely and magnificent pleasure-ground which rejoices in the intensely common-place name of the Central Park of New York, I observed with regret that the elms which had been set out in the portion which is now the Mall, were in a very languishing condition, many actually dead, and a few torn out by the roots, to be removed. Examining the roots of those that were thus upturned, I found that they were uniformly of a dark-blue color. Puzzled by this peculiar appearance, I asked an intelligent foreman who was superintending the operations for an explanation. He kindly gave it substantially as follows. "The holes in which these trees were placed were filled with street dirt. The manure and other organic material which this dirt contained had not been properly fermented. Hence the process of fermentation going on after the trees were set out, cyanogen was evolved, this combined with the potash of the earthy and vegetable constituents to form cyanide of potassium, and this in turn with the iron from the wear and tear of street traffic, from horseshoes and wheel tires, to produce ferrocyanide of potassium, and these roots are stained with a true Prussian blue, which poisoned the trees, and will make it necessary to replace every one of them, the poisonous manure being in the mean time removed." Now, I frankly confess, that I am not in a position to prove that, in the same way, encouraged by the warmth and moisture of the mucous mem-

brane of the air-cells, fermentation of these organic matters has taken place in the lung of the human being with a similar result, but I ask, "Is it impossible to conceive that it may have done so, admitting, as we must, the fact that their particles have penetrated thither? And supposing that this somewhat poisonous substance should be generated in the interior of the economy, and in direct juxtaposition to the blood, is it difficult to imagine as a result something like a rapidly fatal collocation of symptoms as those we have become unhappily familiar with in these cases of foudroyant pneumonia, which inevitably impress one with the idea that the fountains of life have been poisoned at their very source?" It is quite true that the ferrocyanide of potassium is not among the deadliest of poisons; but it is possible to conceive, first, that in its nascent condition it may be more active than after it is definitely formed; and secondly, that in contact with the exquisitely delicate lining membrane of the air-cells, and in fact with the blood itself, at a moment of intense activity in the life-history of that fluid, it might have a very different action both locally and systematically, than when introduced into the stomach. Whether this chemical theory be accepted or not, however, all will be willing to admit that this compound of animal and vegetable filth and earthy and ferruginous matter is a nasty thing to be taking into our mouths and lungs, and that in some way, if not in that suggested, it may be provocative of disease. Hence the pertinency of our second query, "Can the introduction of this beastly stuff into our systems be prevented?" I believe that it can, but the means are so absurdly simple, affording so little scope, either for inventive skill or financial genius, that I despair of its ever being adopted in an American city of the first class. What is the present mode of removing this offensive material from our streets? Let me briefly describe it.

After, by a course of alternate freezing and thawing, wetting and drying, and thorough trituration, the various materials have been thoroughly commingled, and reduced to the requisite degree of fineness, the street-cleaning authorities send out, one fine, dry, windy morning, a huge, lumbering engine, which sweeps a portion of the mass up into winrows near the edge of the pavement. The course of one of these machines can be marked as far as it can be kept in sight by a cloud of dust hovering over it. These winrows lie for a few days to ripen in the sun and rain, and then a small army of superannuated Celts makes its appearance, armed with utensils composed of elastic twigs, admirably contrived for raising the dust into the air and elevating it to great heights.

I have sometimes observed with astonishment the rapidity with

which the particles thus dexterously thrown upwards would ascend with the kindly aid of a gentle breeze until they could be seen to enter the fourth story windows of tall mansions. The portion of the winrows which remain is, by these faithful laborers (who have been not inaptly termed "mound-builders"), partly, as I have said, introduced into the neighboring houses, and partly piled up in heaps, which remain an indefinite period as a memento of their otherwise inexplicable labors, and is then tossed into carts, generally without covers, which, as they jolt over the cobble-stones, again distribute the finer particles through the atmosphere, along the whole line of their route. A mind of a calibre by no means above the average might perhaps arrive at the conclusion that this is possibly, on the whole, not the best way of solving this problem. Is there a better? I think there is. It depends on two assumptions already made in the early part of my remarks. First, that by far the larger part of the street dust is organic, consisting principally of horse droppings, and secondly, that it is chiefly this organic element which is dangerous to the health. Now I would simply never allow that element to become a portion of the street dust. In place of the compact army of dust-raisers, moving in solid phalanx through the streets at long intervals both of time and space, I would have scavenging skirmishers scattered throughout the entire city, constantly on duty day and night, each having his own beat, each armed with a hoe and shovel, and each pushing a wheelbarrow. I would have these officials so numerous, that no deposit, animal or vegetable, offal or garbage would lie five minutes on the street. Taken up in this way, while still moist, it would never be disseminated through the air, and a certain portion of the earthy dust would also necessarily be taken up with it. The quantity which would remain for the dust raisers to amuse themselves with in building their mounds would be wonderfully lessened, and, what is better, would be comparatively innocuous. We have all of us seen this successfully accomplished in country villages, and there is no good reason why it could not be as successfully carried out in large cities, except the cupidity of contractors. So long as "Boss-ism" reigns supreme, so long shall we be poisoned as we walk the streets and breathe the air of our homes, and so long will pneumonia slay its thousands in this startling fashion.

Passing now to the consideration of the air of our homes and places of business: The sources of its contamination are chiefly two: first, gas from sewers and cess-pools; secondly, emanations from the human body, both in health and disease. With regard to the first, our obvious necessity is to prevent its entrance.

To take up the whole subject of the water-closet, that greatest luxury and most intolerable nuisance of the modern city, and attempt to indicate the comparative merits of its different forms, would, in itself, occupy the time allotted to an address. I can only point out the two general subdivisions, in which all the different modifications will be found, and both of which have their champions and defenders, while both are liable to become sources of disease in three different ways. These are the hopper and the basin or pan-closet.

The old-fashioned pan-closet is condemned by many sanitarians on the ground that the space beneath the pan is liable to become foul and generate unwholesome gases, but possesses advantages of its own which will make it very difficult to displace it, even should it be proved to be desirable to do so. The hopper has no such reservoir and its surfaces are more easily kept pure and clean. Both, however, depend for their protection in great measure, the latter entirely, upon the water-trap immediately beneath them. The three ways alluded to above in which this trap may become inefficient are as follows (I take the liberty of quoting from an article which I recently had the honor to read before the Philadelphia County Medical Society):—

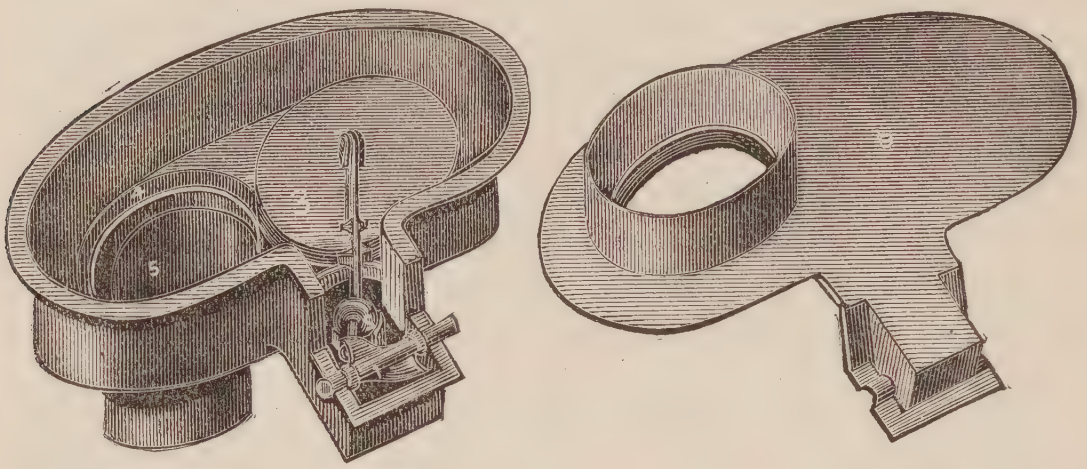
The water-seal of the trap of the water-closet, stationary wash-stand or wash-tub, or bath, as the case may be, may become inefficient, 1st, in consequence of the water falling below the protective level from evaporation, when the appliance is for some time unused; 2d, from what is called siphoning, that is, the production of a vacuum in the soil-pipe by the sudden rush of water from a closet on a higher level, which sucks out the water from the trap; and finally, in consequence of saturation, that is to say, the water slowly absorbs the gas in contact with its sewer surface until it becomes entirely saturated: as soon as this has taken place it begins to give it off at its closet or basin surface as rapidly as it receives it at the other.

This last is perhaps the most dangerous, because the most insidious, form in which the poison finds access to our homes. It is that which takes place all through the night from the wash-stand which is by our bedside, or the bath-tub in the adjoining dressing-room, while the water-closet is more apt to be in a distant part of the house and quite distinct from sleeping apartments. The appliance to which I now call your attention affords a complete remedy for this evil as long as it is in position. During the brief time in which the closet is in use it is not operative; our protection then must be in the water-trap, which still exists below this, and in ventilation. And I would here briefly say, in passing, that thorough ventilation

is a *sine qua non* in sanitary plumbing. No system of plumbing should now be introduced into any house which does not include a ventilating shaft as large as the soil-pipe, having its top above the roof of the house, and running, if possible, along the smoke-stack, so that the heat thus communicated may create an upward draft.

With the aid of this model and of the diagrams which I have hung upon the curtain, I think you will have no difficulty in understanding the contrivance, which is a simple and not easily disarranged, although, at the same time, a very beautiful, piece of mechanism.

The hole which you observe in this metal casting is just the size of the top of the soil-pipe, and is continuous with it, being below



the hopper and above the water-trap. Around the edge of this hole and on the upper surface of the casting is a trough about three-fourths of an inch deep. This movable cap which I now show you is provided with a flange on its under surface exactly corresponding to the trough. Now, it will readily be understood that so long as this flanged cap sits in a fluid in the trough, provided this fluid is impervious to gases, so long is the passage of gas beyond it a physical impossibility. Such a fluid we find in mercury. It cannot evaporate; it is too heavy to be siphoned out; and it does not absorb gases. Its loss from oxidation is so slight as to be almost imperceptible. This cap is moved on and off from the opening of the soil-pipe by means of an ingenious contrivance known as "Spratt's Movement," in which the opposite end of the lever which is attached to its upper surface articulates, as you see, by means of this spherical head with a deep spiral groove on a horizontal shaft. This shaft is attached by a sort of crank-rod to the cover of the seat. Now, as I lift the cover I also lift the cap and throw it to one side in a chamber provided for the purpose; as I shut down the cover I replace the cap, and the seal is perfect. This appliance can be adjusted to any water-closet of whatever description. In case of

there not being sufficient thickness of joist to allow of its being set under the floor, the seat must be proportionately raised, say about three inches. This slight inconvenience can be met by placing a low step in front of the seat.

So much for the water-closet. I now show you the seal for the wash-stand and similar arrangements. It is made of glass, so that if out of order the fact can be detected in a moment. It consists of a cylindrical glass reservoir closed at the top and admitting the waste-pipe through its bottom. The waste-pipe ascends to within about two-fifths of the distance from the top, terminating in a free extremity; over this free extremity sits quite loosely a glass cup like a small tumbler turned upside down. At about the level of the free extremity of the waste-pipe there is a hole in the side of the reservoir for the escape of the water.

As in the case of the water-closet seal, mercury is again used as the sealing fluid. Here it covers the bottom of the reservoir to a depth of half an inch or more. The working of the appliance is as follows. When a stream of water enters from below, it lifts the inverted glass cup out of the mercury, as I now lift it with this pen-holder. Flowing out under the rim of the cup and over the surface of the mercury, it fills the reservoir and escapes at the opening in its side. The moment the current ceases, the cup falls back into its place, and should there be any reflux of gas it exerts its pressure on the top of the cup, thus firmly holding it in the mercury and adding to the security of the seal. I think that I can demonstrate this in such a way as to be visible to all. You observe that the inverted cup now floats with its edge resting upon the mercury in the reservoir. Now imagine for the moment, if you please, that I am a sewer, and that (what is very foreign to my nature) I am full of gas. I apply my lips to the escape tube of the seal, and as I blow you observe the cup instantly burying its edge more deeply in the mercury and thus making the transmission of my breath beyond it absolutely impossible. I have had specimens of the different kinds of water-closets placed upon the stage where they can be examined after the conclusion of the session, when it will be seen that the appliance described can be attached to either of them indifferently. It is known as the "Evans Mercury Sewer Gas Seal," and has already been in successful use for a year past.

But in spite of all our efforts, the air of the house will at times become impure. Sewer gas will creep in from unsuspected sources, rats will die in the walls. Infectious diseases will disseminate their germs from the bodies of the sick. Of course, ventilation, as free as possible, is here also the great purifier and safeguard. But it is not

always possible to secure free ventilation, and even when it is possible to do so, it is also very desirable to have some additional means of counteracting, and, if possible, destroying these poisonous emanations, so that the air which carries them from the sick-room or the foul house may carry them at least deprived of their deadly potency. There are many agents to which we are in the habit of resorting for this purpose. Prominent among them are the compounds of chlorine and of sulphur, and carbolic acid. There are three general modes in which such substances accomplish the desired end: either as anti-zymotics, by checking fermentation, or as germicides or bactericides, by killing fungous spores or infusorial animalculæ, or finally, by oxidizing or burning up decomposing matter, whether animal or vegetable, whether solid, liquid, or gaseous. Some of these substances act in one way, some in another. There is but one, so far as I know, which has been proved to act in all these ways, and that is *Ozone*. Although it is more than forty years since the separate identity of this singular agent was established by Schönbein, but little has as yet been determined by chemists as to its nature and composition. It has many points of resemblance to oxygen, and has been considered to be that element in a condensed form. What is positively known about it, however, is of the greatest practical value, namely, that it is an oxidizing agent of most tremendous activity, that it is always present in pure air, and in greatest quantities where the air is purest, as at the seashore and on mountain tops; that it is always actively at work destroying the products of animal and vegetable decomposition in the atmosphere; that bacteria, when brought under its influence in any degree of concentration, die instantly; that it will immediately destroy foul odors of all kinds, even that of rotten eggs; that it will, at ordinary temperatures, oxidize carbonic oxide, a deadly, but inodorous, and therefore often unperceived gas, into carbonic acid, which is comparatively innocuous; that it is, in fact, nature's great disinfectant, by means of which our atmosphere is kept in a condition to support animal life.

Says Kedzie, "I call ozone the most energetic of the constituents of the atmosphere. Hozeau has found that it has forty times the bleeching power of chlorine. Compared with the normal constituents of the air, it is an agent of amazing power. Such a substance present in the air which bathes our bodies at all times, and which penetrates our lungs with every breath, must be, for good or ill, a force of singular power over the human frame. Its presence or absence in the atmosphere *must have a controlling influence over the vital powers*. And when we consider that this material is pre-

sent in such *variable amount*, in a medium which enfolds us every moment of our lives, and whose action "pauses not for matin or for vesper, at noon of day or noon of night, it seems to me that no one can deny that its influence on human health must be most significant.

"Ozone will oxidize ammonia into nitrate of ammonia, and will, in particular, neutralize ammoniacal compounds which are produced by the decomposition of azotized organic matter. This power of ozone to oxidize the hydrogen compounds of sulphur, phosphorus, and nitrogen, enables it to destroy the offensive products of animal decomposition."

"Ozone," says another writer, "is being continually produced in the laboratory of nature; it may well be called the 'universal oxidizer.' Not a drop of water is evaporated from the river, the lake, the ocean, but what contributes its share of energy in converting a portion of oxygen of the atmosphere into ozone; not a stroke of lightning occurs but that some oxygen is condensed and ozone results."

Now it would appear to "go without saying," as the French say, that an agent possessing such remarkable properties, if it could be introduced into an atmosphere charged with impurities, in such quantity or concentration as to rapidly oxidize them, without irritating the mucous membranes, or acting too powerfully as a corrosive or bleaching agent on articles of furniture or clothing, would be an addition of great value to our means of combating infection and atmospheric poisoning. The little contrivance to which I call your attention, and which has been in operation before you during this afternoon's session, is designed to accomplish this very desirable result. Its action depends upon the fact long known, in fact discovered by Schönbein himself, that ozone is generated by the passage of moist air over phosphorus. It consists of a glass reservoir, open only at the top, surmounted by a metallic cap pierced with small holes for the escape of ozone and entrance of air, and at its centre, with a larger hole, through which passes a vertical glass rod, carrying a glass cup at its lower end, and capable of being raised or lowered at will. The reservoir is filled about two-thirds with water, either pure or containing some disinfectant (in this case permanganate of potash, which enables it to be seen much more distinctly, but has no claim to the title of ozone fluid, which the inventors of the apparatus give it). In the cup is placed a cylinder of phosphorus about an inch in diameter. The phosphorus is lowered into the water until only about a sixteenth of an inch of its length is left above the surface. Faint fumes of phosphorous acid are given off, as may be seen, but not sufficient to be percepti-

ble to the sense of smell, as the ozone which is generated at the same time effectually destroys them. A single appliance of this kind will keep the air of an ordinary sleeping apartment from becoming close and foul during the night, even where the means of ventilation are very deficient. As an instance of its deodorizing efficacy, I may mention that a few days since the office of the Union Benevolent Association became filled with an odor so disgusting as to produce nausea and render it quite untenable. Its cause was supposed to be the presence of dead rats under the floor. An apparatus similar to this was placed in the room, and with so satisfactory a result, that on the evening of the same day, a meeting of the board of directors was held in it with entire comfort. It was left in the room, which was tightly closed, during the night, and the next morning the air of the room was found perfectly pure and sweet, so far as the sense of smell could test it. Of course any contrivance which will allow of this process of slow oxidation of phosphorus in a moist atmosphere, will accomplish the same result. The advantage of this particular one is the ease with which it is manipulated after the phosphorus has once been introduced, an operation, I need not say, requiring the greatest possible caution. I find an objection to it in the extremely frail connection of the phosphorous cup with the stem which holds it, rendering it liable to fracture unless handled with the greatest care. There is another form of ozone generator, known as the "Dome Generator," in which the phosphorus is set around in a number of little vessels under an earthen dome, but a scientific physician, who has tried it, in one of our large institutions, assures me that it is very difficult to manage. This form is known as the American Ozone Generator. It is claimed that one or two such generators placed in a room where there is a case of infectious disease, such as scarlatina or diphtheria, would destroy the emanations from the patient as they arose, rendering the air innocuous to those who did not approach very close to, or have actual contact with him, and certainly prevent the contamination of the air of the rest of the house. For this I cannot vouch, but can say that one which has been in active operation in the Movement-Cure Hall of my sanitarium, for some weeks, has appeared to exert a beneficial effect upon the air of the room. Theoretically it must be conceded that the idea is a happy one. It remains for you, practising physicians, to give it the crucial test in the sick-room.

ADDRESS IN MEDICINE.

By J. SOLIS COHEN, M.D.,
PHILADELPHIA.

In preparing this address on medicine, which I have the honor to read before you, I have watched, during the past year, the action of some little known or little used remedies, which have been recently brought into somewhat prominent notice, and the practical value of which is of some importance to medicine, should the claims advanced in their behalf prove to be well founded.

Perhaps there is no one remedial agent to which recourse is had more frequently or more confidently than to opium Many substitutes have, from time to time, been suggested, but none of them have proved reliable. The well-recognized injurious effects of the preparations of opium, in impairing the appetite and digestion, and in inducing constipation—not to speak of other deleterious influences which do not come within the scope of the remarks about to follow—have long disposed practitioners to welcome the introduction of any drug promising a satisfactory hypnotic and analgesic action, without the unpleasant, and sometimes dangerous, accompaniments, that have been alluded to.

Even the separation of certain components from the crude drug has failed to eliminate the undesirable influences and retain the needed ones. No one preparation of the constituents of opium represents the combined value of the entire drug. Substitutes for opium are usually introduced to take its place in the production of some particular effect, rather than of all.

The most recent candidate for professional recognition in this connection, is *Piscidia erythrina*—the Jamaica dogwood—whose claims are sufficiently interesting to have induced me to test its value in the few suitable cases which presented themselves in my hospital practice, both at the Jefferson Medical College Hospital, and the German Hospital of Philadelphia. It is claimed for this drug that it is capable of soothing pain, without unpleasant sequelæ, such as follow the use of opium. It is said to have been used for a long

period, in the rivers of Florida, for the purpose of catching fish, stunning the strong ones and killing the feeble. That the drug possesses considerable power in subduing pain, I have had sufficient evidence, but its liability to produce sudden collapse from relaxation of the heart muscle renders it anything but a safe remedy in continuous doses in private practice. Notes of a few cases prepared for me by the residents on duty are herewith appended.

While exhibiting a remarkable hypnotic effect of the drug when given in decided doses at short intervals, they exemplify a pernicious influence carefully kept in the background or ignored altogether by most of its advocates.

Case I.—(German Hospital.) Nov. 8, 1880. A single woman aged 20, suffered excruciating pain from neuralgia of the left ovary. Her screams were so violent, that she had to be removed from the ward, and placed in a private apartment. One-fourth grain doses of sulphate of morphia by the mouth failed to control the pain at all, and its hypodermic use in the same dose simply modified the pain in a moderate degree. The fluid extract of the bark of the root of the Jamaica dogwood was now administered in drachm doses at intervals of twenty minutes. During the interval between the third and fourth doses the pain subsided entirely, the relief continuing from six to twenty-four hours.

The only unpleasant effect from the drug was a gentle perspiration. Within three weeks the patient left the house apparently permanently relieved of her neuralgia.

Case II.—Nov. 9, 1880. A married woman, aged 33, had an abscess in the left popliteal space, due to contusion of the parts by the wheels of a railroad car. The pain was intense. She received drachm doses of *Piscidia erythrina* in the afternoon at 3.35 and 3.55. At 4.05 she took half an ounce of whiskey in water; at 4.15, piscidia. At 4.20 she vomited, and at 4.25 another dose of piscidia was administered. At 4.30 she began to perspire, and the pain lessened; at 4.55 she perspired profusely, and by 5.20 the pain had entirely left her. She then fell asleep and slept all night. Two days later, Nov. 11th, the pain returned, and piscidia was given in drachm doses every half hour until four doses were taken. Perspiration did not appear, but the severity of the pain increased, while the drug was administered; and finally the patient's complaints became so alarmingly great, that a hypodermic injection of one-third grain of morphia was given, and in fifteen minutes after the injection of morphia the patient was asleep. No unpleasant symptoms followed the administration of the two drugs. The pain did not return.

Case III.—Dec. 17, 1880. A single man, aged 42, suffered from cancer of the stomach, with nausea (although he did not vomit), and severe pain in the gastric region and the back. Piscidia was given in drachm doses every half hour. After the third dose he began to perspire freely, and in a few minutes, vomited. At the expiration of the half hour, a fourth dose was taken, followed by complete relief from pain, free perspiration and vomiting. Diarrhœa also set in, which could only be attributed to the medicine. Two hours after the last dose had been taken, the patient fell into a sleep which lasted about half an hour. He awoke with pain, which soon increased. The drug was again administered in drachm doses, but his stomach rejected it almost immediately. The pain continued to increase, and the piscidia was discarded for hypodermic injection of morphia, after which, the patient soon slept.

Case IV.—(Jefferson Medical College Hospital.) Nov. 1880. A paraplegic man had excruciating pain in the lower extremities. One-drachm doses of the fluid extract of piscidia were given at intervals of an hour, until four doses had been taken. The first three doses seemed ineffectual; but after the fourth dose was taken, the pulse became very rapid and feeble, respiration labored, and the skin cold and clammy, and the patient lay in a stupor for about two hours.

Case V.—Aneurism of the aorta in a male, with pains severe enough to prevent sleep. This patient took a drachm of the fluid extract at 9, 10, and 10.40 P. M., without any relief to the pain or any disposition to sleep; the only evidence of the drug being a profuse perspiration.

My friend, Dr. M. S. French, has used this preparation a number of times, and reports it to me as a good hypnotic, producing quiet sleep and effectually overcoming nervousness; but he finds it capable of producing alarming and even dangerous symptoms. The cardiac depression, in one of his cases, was very marked; even single drachm doses producing blanching of the face, lowering of the temperature, and clammy sweat. In opposition to the opinion promulgated by the recommenders of piscidia, Dr. French believes that it is a mistake to think that the remedy does not lock up the secretions; for he has even found it to produce constipation.

With the use of this drug in acute mania, I have had no experience, but it is said to be admirably adapted to control paroxysmal excitement. It is quite possible that a simultaneous administration of digitalis with the dogwood, might prevent the failure of the heart-muscle, and thus avoid the collapse which so often attends the continuous administration of this drug. Some combination

capable of restraining this influence is much to be desired, and seems requisite in order that the good effects of the drug may be obtained without danger of unpleasant complications.

These points seem to me to be well worthy the consideration of the Society.

I have had an opportunity of trying the virtues of *citrate of caffein* as a diuretic, in some cases of asthma and general ascites. It has seemed to me to be an admirable remedy, and I have not noticed the peculiar rigidity of the cardiac muscle to which attention has been called by British practitioners, as the result of its use.

Case VI.—Oct. 6, 1880. A married man, aged 53, was admitted into the German Hospital with complete hemiplegia of the right side. While recovering from this paralysis, extensive œdema occurred in both extremities, due to chronic nephritis, and in spite of the use of the ordinary diuretics, the œdema steadily increased. Citrate of caffein was now given in three-grain doses every four hours. After the fourth dose had been taken, the patient began to urinate very freely, and passed an enormous quantity of water during the night, relieving his œdema without affecting him unpleasantly in the least.

Case VII.—Oct. 16, 1880. A single man, aged 32, was in the German Hospital in an advanced stage of phthisis. His legs were very œdematous. Citrate of caffein was administered in three-grain doses at intervals of four hours, with the result of exciting copious discharge of urine, with considerable subsidence of the local œdema, and without any apparent unpleasant effect.

Case VIII.—Nov. 3, 1880. A widow, aged 47, was in the hospital with mitral regurgitation. Her limbs were very œdematous, and there was considerable and painful ascites. Three grains of the citrate of caffein were given every four hours, without producing any apparent effect whatever.

The successful use of *salicylic acid* in acute rheumatism has led to considerable experimentation with its salts. Salicylate of cinchonidia has been found an admirable drug in the treatment of those vague rheumatoid neuralgias, about which we are so frequently consulted. It is best administered in pill, the dose being two to five grains, three or four times a day. It has been used extensively in the Throat Room of the Jefferson Medical College Hospital, as a tonic in rheumatic sore-throats, and in diseases of the nasal passages generally, in that class of cases frequenting a public clinic, and apt to be due to exposures similar to those which produce the neuralgic

affections referred to. I have also used it with considerable success and great satisfaction in several hospital cases of acute rheumatism, substituted for the salicylic acid as soon as the latter has relieved the pain. The plan has been, to give the salicylate of cinchonidia in five-grain doses at intervals of four hours, and to continue it, the patient remaining recumbent in bed, until all danger of cardiac complication was over.

A salicylate of calcium has been recommended in serous diarrhœas in which it is likely that exposure has affected the mucous membranes of the intestines in the same manner as it did those of the throat in cases treated at Jefferson College Hospital.

Both in the German Hospital and the Jefferson Medical College Hospital, as well as in my private practice, I have treated a number of cases of phthisis and infantile scrofula, with the *chloride of calcium*, and can endorse the encomiums which this medicine has been receiving of late years from British medical practitioners. As is well known, this practice is but the return to the use of a drug formerly employed as an alterant in the treatment of scrofula, before it became superseded by the use of iodine and its compounds.

Any remedial agent, which on scientific grounds or extensive empiric experience promises success in the management of diphtheria, is worthy our respectful consideration.

It has been noticed that the false membrane of diphtheria is sometimes detached by excessive secretion from the underlying mucous membrane, and sometimes by a process of actual suppuration. The incontestable value of inspirations of the vapor of hot water, in lifting the pseudo-membranes from their seat, and thus facilitating their extrusion by cough, has been accounted for in two manners—both of them resulting in practically the same mechanical effect. My own opinion has long been that the vapor of water becomes insinuated beneath the irregular, and perhaps partially detached edges of the membranous patch, and thus detaches it mechanically.

Prof. Oertel believes that the inhalation of the vapor of warm water produces a suppurative inflammation of the mucous membrane, and that the pus detaches the false membrane from the surface. We thus see, that in both nature and art, one of these two processes is employed, in the physical detachment of the morbid product. Water, serum, or mucus is the agent in one instance, pus in the other.

The well-acknowledged property of *jaborandi*, in stimulating secretion from the surfaces of the mucous membranes, especially those of the mouth and throat, has led to the utilization of this drug, for the production of a similar mechanical influence beneath the pseudo-membrane, thus aiding in its detachment and expectoration.

Dr. George Guttman, of Cronstadt, has reported some admirable results from this method of treatment. He employed the alkaloid of jaborandi—pilocarpin; administering the muriate of pilocarpin in doses of from one-sixteenth to one-twelfth of a grain hourly for children—and four times this dose to adults. In the few cases reported, recovery took place in from two to four days. The pilocarpin was administered in addition to the general treatment usually adopted by the observer. Several other observers have testified to the good effects of pilocarpin in diphtheria, and the subject is well worthy the attention of the practising physician. It is well to remember, in this connection, however, that although Guttman never observed any undesirable effects from the drug, even when persisted in to the period of complete recovery, others express a different opinion. To mention a single instance only, a writer in the *Wiener Medical Presse* (No. 15, 1881) goes so far as to declare it, as the result of faithful trial, generally useless and often injurious. Guttman, however, administered a small quantity of good wine after each dose.

From careful consideration of the published results of the use of the drug, favorable and unfavorable, it would appear to me that it is being recommended on one-sided theoretic grounds only, the depressing influence upon the heart being kept out of sight; an influence which, on theoretic grounds likewise, has thus far deterred me from prescribing it in any of my own cases.

A subject of great importance to the medical practitioner is that of anti-periodic remedies. The threatened exhaustion of the cinchona tree, and the continuously high price of quinia and other alkaloids of the bark, premise a favorable reception for any cheaper, efficient substance. It has been lately claimed that *iodine* may be safely, satisfactorily, and economically substituted for quinia. It is asserted by Dr. Grinnel, that in doses of from ten to twelve drops of the tincture, properly diluted (one-half glass of sweetened water), every eight hours, "iodine will never rank second to quinia in the treatment of intermittent fevers."

The use of iodine in malarious affections seems to have originated with Russian physicians; and it was resorted to by Dr. Grinnel at a

period when his stock of quinia had become exhausted. His confidence in the remedy is the outcome of the successful treatment of 135 cases of intermittent fever, principally quotidian and tertain, many of them in children and infants. Similar success followed the substitution of iodine for quinia in several cases of diarrhœa and neuralgia of malarial origin. This result is sufficient to justify the practitioner in testing for himself the value of iodine as a substitute for quinia. From inquiries addressed to some of my professional friends since my arrival in Lancaster, it would seem that in some cases of malarial origin, iodine does possess a power of counteracting malaria similar to that possessed by quinia.

These, gentlemen, are the chief practical points suggested by a careful survey of current medical literature for the past year.

ADDRESS IN OBSTETRICS.

By S. T. DAVIS, M.D.,
LANCASTER.

On Thursday morning, June 15, 1871, at an annual meeting of this body, held at Williamsport, Pa., Dr. S. D. Gross, President, requested Vice-President Dr. Joseph Parish to occupy the chair, when he offered the following resolution, which was unanimously adopted:—

Resolved, That it shall be the duty of the President annually to appoint some member to deliver an Address in Medicine, an Address in Surgery, and an Address in Obstetrics, reviewing the progress during the previous year of these respective branches and the collateral sciences.

The lamented Washington L. Atlee, whose birth-place is but a few squares from where you now sit, and to whom belongs justly, the credit of having given to gynæcological surgery such an impetus that its onward march has been so rapid that even within the last twelve months it has added new laurels to the bright constellation, was the first member appointed to read an address, in 1872, at the meeting at Franklin, Pa. His subject was "The Use of the Speculum in the Diagnosis and Treatment of the Diseases of the Uterus," and was full of original thought and practical suggestions.

In 1873, Dr. William Goodell read, at the meeting held at Carlisle, Pa, a very exhaustive report on "The Progress of Obstetrics and Gynæcology," subjoining to most of the subjects a bibliography, which rendered his report still more instructive and practical.

In 1874, at the meeting at Easton, Dr. Wm. B. Atkinson presented a very extended *résumé* of almost the whole subject of obstetrics, giving the treatment pursued and the opinions entertained by the most eminent men of both continents.

In 1875, at the meeting held at Pottstown, Dr. Joseph Coblentz was to have furnished the report, but for some reason unknown to your reporter there was no paper read.

At the meeting held at Philadelphia in 1876, Dr. R. Davis, of Wilkesbarre, read a paper on "Placenta Prævia."

In 1877, Dr. S. B. Kieffer, of Carlisle, read, at the meeting which was held at Harrisburg, a paper on "Puerperal Convulsions," in which "the lancet was termed the talismanic staff, upon which the physician can lean with confidence in treating puerperal convulsions."

At a meeting held in Pittsburg in 1878, Dr. Wm. Goodell read a paper on "Laceration of the Cervix Uteri."

At Chester, in 1879, Dr. E. Wallace was the appointee, but no paper was read.

In 1880, at the last meeting, held at Altoona, our worthy President read a full and complete history of obstetrics in Pennsylvania.

It is worthy of note, that, in the nine meetings of the Society, at only seven of which papers were read, the *Transactions* received, as a result of Dr. Gross's resolution, from the subject of obstetrics and its collateral branches alone, one hundred and forty-three pages of printed matter, pregnant with valuable information, mostly gleaned from the notes of actual experience.

In order that your reporter might be enabled to carry out as near as possible the letter and spirit of Dr. Gross's resolution, the following circular letter was sent to over two hundred recognized obstetricians throughout the United States:—

LANCASTER, January 24, 1881.

DEAR DOCTOR: In accordance with a resolution passed at a meeting of the Pennsylvania State Medical Society, held at Williamsport, June 17, 1871, I was appointed at the last meeting of the Society to read the Address in Obstetrics, reviewing the progress of that branch of the profession during the last year ending on the second Wednesday of May, 1881, the time of the next annual meeting at Lancaster, Pa. In order that I may be enabled to make both an interesting and instructive report, I have decided to ask a few questions of my professional brethren who are known to enjoy a large obstetric practice, and who have ample means of making observations, to furnish me, either by reference to special reports by others, or actual observations in their own experience, answers to the following questions:—

1st. Have you discovered during the last year anything pertaining to the obstetric art which you regard as new?

2d. Have you had any remarkable recovery of a patient in which treatment, either mechanical or medicinal, was entitled to the credit?

It is not intended that extended answers should be given, merely

concise statement of facts. Hoping to hear from you before the first of April, 1881, I am

Fraternally yours,
S. T. DAVIS, M.D.

It is highly gratifying to me to be able to state that in answer to the above, I received over thirty communications, a goodly number of which were reports of cases of interest, and which had not been given to the profession, and had occurred during the last year. That the subjects of obstetrics and gynæcology, or more properly speaking gynæcological surgery, are receiving year by year more and more special attention by the most able minds in our ranks, is a fact requiring no other proof than a perusal of some of the standard works on the subjects of but a few years ago and comparing them with the literature of to-day.

And what more benefiting theme could occupy the time and talents of the physician than that of coming to the relief of the mothers of our race in their hour of greatest trial when one or both are crying "Save, or I perish!" I desire first to call attention to operations which involve the

OPENING OF THE ABDOMINAL CAVITY.

And the first operation, if not the most important that has come to the notice of your reporter, which was performed during the past year, and to which I desire to call especial attention, was Cæsarean section, with removal of uterus and ovaries, after the porro-Muller method, by Dr. Elliott Richardson, of Philadelphia, Pa., reported in the *American Journal of the Medical Sciences*, January, 1881. The lustre of the happy termination of the operation is rendered all the more brilliant from the fact that it was the first operation of the kind performed by any English-speaking surgeon.

I quote from an extract of the report as it appears in the *Cincinnati Medical News*:—

The patient was a dwarf, twenty-five years of age, forty-six inches in height, and weighing eighty-five pounds. It was thought best to select a time for the operation, about two weeks anterior to the supposed period for labor to set in, in order to permit ample preparation, and to avoid the exhaustion incident to labor. It was thought too that the presence of a well-defined cervix would make easier the application of the retaining ligature at the time of the operation, which was performed on the 22d of September, 1880, and begun by an incision in the median line of the abdomen, extending from a point about one and a half inches above the symphysis pubis to a

point about four inches above the umbilicus. The incision was about ten inches in length, and was made so exactly in the median line of the abdomen that not more than a teaspoonful of blood was lost from the operation. No hæmostatic was used and no ligature had to be applied. The abdominal cavity being opened, the uterus could be seen and was drawn out, the abdominal walls being closed immediately and a piece of carbolized flannel wrapped around the base of the uterus. The loop of an écraseur, being thrown over the uterus, was tightened at a point a little below the os internum. The uterus was then rapidly opened, the placenta being found directly on the anterior wall, the incision going through it. It was detached, and it and the entire ovarium were turned around within the uterine cavity, the membranes ruptured and the child was extracted, followed by the entire removal of the after-birth.

Two stout steel pins about the size of a No. 8 French bougie, and five inches in length, were then introduced through the cervix, one passing below and the other above the wire of the écraseur, and diagonally to the line of the abdominal wound.

A piece of stout silk cord, previously soaked in carbolized oil, was tied tightly around the cervix between the two pins exactly in the line of the temporary wire loop, which latter was removed as soon as the permanent ligature was applied, but before it was finally fastened. The silk ligature was wrapped twice around the cervix and then tied. The uterus and ovaries were now cut off with scissors at a point about three-quarters of an inch above the ligature, and the stump placed at the lower angle of the abdominal wound, where it was supported by the steel pins. The abdominal wound was closed in the usual manner after Lister, whose method was fully carried out during the whole operation. The history of the case after the operation, was all that could be desired. During the first ten days, the temperature only once rose to 104.5°. On the eleventh day a mild attack of phlegmasia dolens supervened, and the temperature for three nights succeeding reached 106.6°; convalescence then went on without further interruption. The abdominal wound united by first intention. The pedicle came away on the eleventh day. The functions of the bladder were not at all interfered with. The infant, a vigorous male of five pounds and a half weight, is at present living and well, as also is the mother, three months after the operation. Dr. Richardson says, with regard to the effect of the operation, "I have rarely seen less discomfort in a lying-in woman after normal labor." The astonishing results of this very remarkable case, and the assurance that this poor woman can enjoy, that she will not require in her life another like operation, serve as im-

portant nucleii for thoughtful surgeons, and the first subject to which their attention should be called is, why allow a patient suffering from a large submucous fibroid, which cannot be enucleated, to eke out a miserable existence, until the last drop of blood has been lost and death claims its victim, without giving her the benefit of the operation, so successfully performed by Dr. Richardson? While in this connection, your reporter desires especially to call attention to an article which appeared in the *American Journal of Obstetrics and Diseases of Women and Children*, volume xiii., No. 4, October, 1880, from the pen of that original thinker and ardent, skilful surgeon, Prof. H. P. C. Wilson, of Baltimore, Md., entitled "A Case of Combined Intra-uterine and Abdominal Pregnancy. First child born naturally at eight months. Second alive at term by laparotomy." The history of this case is so full of interest, that to pass it by merely mentioned would do Dr. Wilson an injustice. I will therefore give an outline of the most prominent points. Mrs. B., æt. 24, had three living children at three previous births. April 15, 1880, delivered of fourth child, a female, just one month before her expected confinement, was attended by an intelligent midwife, who reported the labor perfectly natural. Placenta came away quickly and naturally. It was evident to both patient and midwife that there was another child, and after waiting some time they became alarmed and sent for Dr. F. Chatard, Jr., who called to his assistance Dr. F. C., Sr., whose experience extends over 5500 cases of labor. Both physicians agreed that the woman was pregnant with a second child, but were at a loss to know as to its exact habitation. Dr. Wilson saw the patient three days after the delivery of the first child, in consultation. Her condition was as good as could be expected after natural labor. Bromide of ethyl was administered and the hand was passed into the uterus, the walls of which surrounded it perfectly. No double uterus could be found. When the abdominal tumor was moved, the uterus did not move with it, and upon applying the ear to the abdomen of the patient, the fœtal heart could be distinctly made out.

As the tumor was movable without corresponding motion in the uterus, the pelvis was free and the uterus empty, Dr. Wilson and his associates in the case were satisfied that they had a case of abdominal pregnancy with which to deal. It was wisely agreed to carry her as near as possible to the time of her expected confinement, May 15th. Accordingly, on the 11th of May, Dr. Wilson, assisted by a number of other medical gentlemen, performed laparotomy. An incision six inches in length was made down to the peritoneum, which was divided over a gooved director. The tumor

presenting had all the appearance of an ovarian cyst, the walls of which were so fragile that in passing the finger gently over its surface, a rent was made, through which issued a dirty-yellowish fluid, evidently amniotic. Upon the patient being rolled over on the side, half a gallon escaped into a vessel. The opening was then enlarged, and there presented the back and buttocks of the child, which was without difficulty delivered,—a boy of eight pounds weight, and was living three months after the operation. It was impossible to locate the attachment of the placenta, and, inasmuch as it was decided to allow it to remain undisturbed, it was not thought expedient to prolong the search. The operation was almost bloodless, and done under Lister's spray. The cord was brought out at the lower angle of the abdominal wound, and the latter closed by six silver wire sutures, each one passing through the edges of the cyst-wall. Her temperature half an hour before the operation was 100°, pulse 104; half an hour after the operation, temperature 100°, pulse 112. The operation lasted one hour and ten minutes. May 14th, the third day after operation, she had a good night, slept well most of the time; died May 15th, 7.30 A. M., ninety hours after the operation. Post-mortem two and one-half hours after death. No fluid in the abdominal cavity. No peritonitis, not even congestion. The sac which contained the child was so firmly united to the abdominal walls on the right side below the floating ribs that separation was impossible. It was from one-sixteenth to one-tenth of an inch in thickness, and attached to the omentum above the transverse colon on the left side, and behind to the small intestines, the fundus of the uterus below and dropped down into Douglas's cul-de-sac. The after-birth consisted of three distinct placentas, not one mass with three lobes, but three separate bodies, only united by membranes, on which three distinct sets of vessels coming from a common cord, were conducted to each placenta. The umbilical vessels divided about two inches from the surface of these placentas into three separate sets of vessels. One placenta was about as large as the other two together. It was about six inches in its long diameter, four inches in its transverse diameter, and two inches thick. The two smaller ones resembled enlarged kidneys They were attached to the fundus and left side of the uterus, the left Fallopian tube, and upper part of the left broad ligament, entirely outside of the tube and resting on top of it. Dr. Wilson concludes his very interesting report, of which I have given only a synopsis, by raising the question as to the immediate cause of death. He says: "We left her at 7 A. M., after which she asked for, took, and enjoyed a cup of coffee. She then asked the nurse to raise her up in bed, when she suddenly turned

blue in the face, her head fell back, and she expired in a few moments. Drs. Allen P. Smith, F. Chantard, Jr., and myself, left her thirty minutes before, thinking her better than she had been for sixteen hours. There is every reason to believe that septic poison was circulating in her blood, as there was present every condition to produce it, but she did not die as I have always seen patients die of septicæmia. She had no chill, no profuse sweats, no muttering delirium, no peculiar sweetish breath, no sudden rise of temperature. Her mind was clear and calm up to the moment of death, which was sudden and unexpected as from embolism. The girl born naturally died, a little over a month after its birth, for no other reason than the want of a mother's care and good nursing."

In this connection your reporter takes great pleasure in directing the attention of the profession to a report of a case of Puerperal Laparotomy for rupture of the uterus, in The American Journal of Obstetrics, for April, 1880, by Dr. J. N. McCormack, of Bowling Green, Ky., in which the ruptured uterus was sutured for the first time on record. The patient was a colored woman 46 years of age, who had been eight hours in labor with her ninth child, under the care of W. M. Claypool, who had been with her from the beginning of her labor. The vertex presented in the first position. The pains were not unusually severe, but rather the contrary. At each pain, one hour before the arrival of Dr. McCormack, the head was beginning to press down upon the perineum, when during a pain she suddenly complained of a burning, tearing sensation in the left side of the abdomen, which was soon followed by marked shock. The contractions of the uterus ceased at once, and on making an examination it was found that the child and placenta had both escaped into the abdominal cavity, through a large rent in the left side of the uterus. There was very little external hemorrhage, though she was suffering from great prostration and dyspnœa. Chloroform was administered and the abdomen was opened in the median line, using all of the antiseptic precautions. When the peritoneum was incised, there was a considerable quantity of bloody amniotic fluid escaped.

The fœtus, a male of medium size, was lying almost vertically in the abdomen, the breech nearly in contact with the diaphragm. The placenta lay at the left of the uterus, close to the rent. After their removal the peritoneal cavity was carefully cleansed with a one per cent. solution of carbolic acid. The uterus was not well contracted. The rent was in its left anterior aspect, irregularly crescentic in shape, and about three and one half inches in length. There was constant but not abundant hemorrhage from the torn uterine tissue. The walls

of the organ did not appear thin or fragile at the point of rupture. The edges of the uterine wound were brought together at several points with interrupted sutures of carbolized silk which were cut close. A drainage tube was inserted into the uterus through the vagina and the abdominal wound closed in the usual way. Eight hours after the operation a drainage tube was inserted into the lower angle of the abdominal wound, and about one pint of reddish serum was withdrawn. The abdomen and uterus were washed out daily with tepid carbolic acid solution. For ten days the patient was in a very precarious condition, the temperature ranging from 101° to 104°, and the pulse from 120 to 150. After the tenth day all the unpleasant symptoms subsided and the improvement was rapid in every way. By the eighteenth day she was able to sit up in bed, and her general condition was all that could be desired. On the night of the twentieth day she slept under a window which lacked several panes of glass, and was thoroughly wet in a rain storm. In four days she died from the effects of a violent attack of pneumonia.

Autopsy six hours after death.—Peritoneal surfaces in the vicinity of the incision and around the uterus were bound together by recent adhesions. The uterus was four and one half inches in length, its walls firm and apparently normal in structure and thickness. An opening one and a half inches in length still existed at the seat of the rupture, the edges of the wound having healed were covered with what seemed to be a smooth cicatricial membrane, but without union. The peritoneal attachments were so complete that there was no communication between the uterine and peritoneal cavities. The sutures were imbedded in the uterine and adventitious tissue at the anterior edge of the rent, having cut off the posterior edge entirely. They had excited no irritation by their presence. The ovaries, bladder, kidneys, liver, spleen, and heart were in a normal condition. The whole of the right lung was in a state of red hepatization. There was marked hyperæmia of the left lung. The autopsy established the fact beyond a doubt, that the patient had safely recovered from the effects of the operation, and that the cause of death was pneumonia.

Our townsman, Dr. M. L. Herr, reported to me verbally that some ten years ago he was called to see a case of rupture of the uterus in which the fœtus had escaped into the abdominal cavity through a rent in the side of that organ, and through which, by the assistance of the attending physician, the child was turned and delivered per vaginam. The lady recovered, is living in this city to-day, and has had two children since.

In my own practice, I have had but one of those unfortunate cases.

The patient was a farmer's wife, 24 years of age, and in labor with her second child. I did not attend her in her first labor, but was informed that, although tedious, it was otherwise natural. Upon making an examination per vaginam, I found the presentation a natural vertex, and the os dilated to about two inches in diameter, the head resting upon the brim of the pelvis. Her pains were coming on about every five minutes, though not violent. The head of the child appeared to be unusually large and unyielding. Her strength was good, and inasmuch as she had only been in labor about two hours and a half before my arrival, I decided to wait. At the end of an hour after my arrival, or three and a half hours after labor set in, and during a pain, she shrieked out, saying, "Doctor, something tore," and she fainted. Upon making an examination I discovered two or three tablespoonfuls of blood in the vagina. The pains ceased. I felt that something terrible had happened, and suspected the true causes of the calamity. I listened for the fœtal heart, but could get no sound, gave her stimulants, and when in a few minutes she recovered from her faint, I learned that she had felt no movement of the child for three days previous to the time labor came on. I at once dispatched a messenger for assistance. The nearest was nearly four miles distant, and in the mean time I used stimulants freely. Her condition was getting worse, and in less than an hour she was moribund and died of shock. The child was dead without a doubt, and had been most likely before labor set in. A post-mortem a few hours after death confirmed the diagnosis. The child was very large, weighing ten and a half pounds, with an unusually large solid head. In the posterior wall of the uterus was a rent beginning at a point corresponding to the promontory of the sacrum, and extending upward toward the fundus three and a quarter inches. There was about a half pint of blood in the abdominal cavity, and about as much had escaped from the vagina.

The subject Oöphorectomy for dysmenorrhœa, epilepsy, insanity, and numerous other affections, has continued to attract the attention of gynæcologists during the last year, and it is with pride that your reporter assures the profession that a goodly number of poor sufferers racked with pain and bedridden, deprived of reason, and eking out a miserable existence, have been restored to comparative health during the last year by the operation. In a private letter from Dr. Wilson, dated Baltimore, March 26, 1881, he says: "Within the last few months I have had the most gratifying results in a case of Oöphorectomy for an intramural fibroid tumor, from which the patient was rapidly bleeding to death. I removed both ovaries. The menopause has been thoroughly established. The

patient is well and growing rosy and healthy, whereas she was an invalid and bedridden for years before the operation."

During the session of this body, held at Altoona last year, Dr. Wm. Goodell removed the ovaries through the vagina, from a patient of Dr. Findley's for insanity, with the most gratifying results, as the reply to the following dispatch fully explains:—

LANCASTER, April 21, 1881.

Dr. WM. R. FINDLEY, Altoona, Pa.:—

How is the patient, Dr. Goodell operated upon during the last meeting of the State Society, getting along?

S. T. D.

His reply:—

ALTOONA, April 21, 1881.

Dr. S. T. DAVIS, Lancaster, Pa.:—

Dear Doctor: Patient upon whom spaying was performed was much improved in mind, but had slight relapse of melancholy; no mania now, as before. I think from her surroundings, physical condition excellent, no change in appearance.

Respectfully,

WM. R. FINDLEY.

In the month of September last, I had the pleasure of witnessing a like operation by Dr. Goodell in Philadelphia, in which both ovaries were removed for distressing neuralgic dysmenorrhœa, which had resisted all other treatment for years, and had dragged the patient almost to death's door, and confined her to her bed three weeks out of every four. I have been informed that the result of the operation was entirely satisfactory.

PUERPERAL PYÆMIA.

The following is an extract from a letter from Dr. Wm. R. Barkeslee, of Coatesville, dated March 19, 1881: "I have had a remarkable recovery of a patient from puerperal pyæmia in which treatment, I am vain enough to believe, was entitled to the credit. Mrs. M., aged 29, gave birth to a male child November 18, 1877, it being her third confinement; child born before my arrival. Gentle manipulation required to remove the placenta from its lodgment. I visited her three or four times during the first week, and at the end of that time she was as well as could be expected. From the 25th of November I did not see her until December 6th, and again on the 11th, a period of sixteen days. In the mean time, two weeks after accouchement (on December 1st), by the advice of the nurse, and without my knowledge, the patient 'put on her clothes and came down stairs,' expecting no doubt, being freed from the travels

of the doctor on the one hand and having the encouragement of the nurse on the other, soon to resume the duties and responsibilities of a farmer's wife. She took a severe rigor, followed by profuse perspiration, a rapid, feeble, and varied pulse. Swelling of the lower limbs from ankle to groin. Three abscesses formed below the left knee, several more near the base of the sacrum; the last appearing late in March was situated near the lower angle of the scapula, and punctured on the 27th of the month. About the latter part of December, the respiratory organs became involved. Dyspnœa, copious expectoration, pulse 160, and for a time it was thought that death might be expected at any moment. Under full doses of quinia, ammonia, and whiskey, she was kept up. About the beginning of February the right eye became suddenly the seat of suppurative inflammation, and very soon its contents escaped. Treatment: Sponging whole body with hot water as often as profuse sweating came on; sometimes as often as two or three times a night. All the suppurating cavities daily cleansed by means of the syringe with carbolic acid water, and a glycerate of the acid of less strength, occasionally a solution of chloral hydrate, and for the dressing carbolic acid and olive oil. The lower extremities were kept bandaged from the toes to the groin, the bandages previously soaked in the carbolic acid water. Cloths wet with the solution were also kept suspended around the room, and the acid water was given internally in small doses. Opium, hyoscyamus, and belladonna extract combined in the form of suppositories sometimes used. At other times chloral hydrate in combination with bromide of potassium or calcium. Quinia and porter steadily and perseveringly administered, two grains of quinia every four hours, and a half pint of porter daily.

"That you may have a better understanding of the amount and extent of some of the means used in the case, I copy from a memorandum furnished by the husband at my request, though it was not commenced until the beginning of January, or six weeks after delivery: Carbolic acid water, 18 pints; alcohol, 9 pints; whiskey and glycerine, $6\frac{1}{2}$ pints; whiskey, pure, 2 pints; cod-liver oil, $7\frac{1}{2}$ pints; porter, 120 bottles; quin. sulph. 700 grains; carb. ammonia, beef tea, eggs, wine, milk, etc. etc.

"This woman recovered completely, with increased weight and vigorous health, minus the right eye, which is in appearance supplied by an artificial one. January 1, 1881, Mrs. M. again delivered of a male child, and recovered without an untoward symptom."

The subject of lacerations of the perineum during labor has received, very properly, considerable attention during the past year.

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If there is any one subject connected with the mechanism of labor not involving the life of the mother or child that should receive the especial attention of every practitioner of obstetrics, it is that of the prevention and treatment of laceration of the perineum. I am not one of that class who believes that in almost every case of labor in the primipara, there is either a partial or complete laceration. But I do believe, that it occurs much more frequently than is generally supposed, and my experience, both in the lying-in room and on the gynæcological chair, bears me out in these convictions. That even slight lacerations can give rise to a retinue of symptoms which can be accounted for in no other way is also pretty generally conceded. Your reporter would recommend for careful consideration, a valuable paper which appeared in the July number, 1880, of the American Journal of Obstetrics, from the pen of Dr. B. E. Mossman, of Greenville, Pa., entitled "Prophylactic Dilatation of the Vaginal Orifice during Labor, as a Prevention of Laceration of the Perineum." In the paper referred to, Dr. M. omits to give the formula for an ointment used, but which he, in a private letter to your reporter, of February 26, 1881, gives as follows: ℞. Ext. belladonnæ, drachm ss; aquæ, drachm ss; adipis, drachm viiss.

Dr. Mossman makes the remarkable observation in his report that dilatation of the perineum as a preventive of laceration, has never yet failed to carry him through in uncomplicated labor, in normal primipara, without so much as even rending the mucous membrane covering the inner sides of the fourchette. If this be the case, he is the originator of the greatest advancement in obstetrics of the age. His procedure is to anoint the external parts and the vagina as far as the finger will reach with the ointment referred to above. Then wait for the first stage of labor to end. If it requires two or three hours, two or three applications are made. As soon as the os has dilated sufficiently to satisfy him that it is safe against laceration, artificial manual dilatation of the perineum is begun. The ointment is applied freely, one or two fingers are placed within the vagina, and pressure made forwards and backwards, and as soon as extension forces the head strongly against the perineum, he removes the fingers from the vagina, and introduces two of them into the rectum, and places the thumb against the occiput. When a pain comes on, pull the perineum upwards and over the presenting head, and at the same time bear upon the head, direct it upwards and under the pubes, as it escapes from the vulva. When the pain ceases and the head recedes, place the two fingers again in the vagina, and continue the pressure just abandoned for the time by the head. When pain returns as before, introduce the fingers into

the rectum, brace the thumb against the approaching head as a check, and operate as already described. Notwithstanding the assurance guaranteed by Dr. Mossman, my experience leads me to believe that there is a certain class of patients in which nothing short of lateral incisions will prevent laceration of the perineum, which the following case fully illustrates, and is but a counterpart of a goodly number which I have encountered during a practice of but fifteen years: Mrs. W., æt. 35 years, married thirteen years, pregnant with her first child. Both husband and wife quite intelligent, and well up in lying-in literature and midwife gossip. Their anxiety was so great that at the end of the eighth month I was sent for to make an examination and give an opinion as to the presentation and size of the pelvic outlet, and also the probable dilatability of the vaginal orifice. I found the head presenting and the pelvis large, the vaginal opening small and the perineum thick and resisting. I assured these anxious people that the indications were all favorable, and that there was in my opinion no cause for unusual anxiety. I requested that I be notified as soon as there were any positive indications of labor (as I determined to save that perineum if it were possible), and as the expected time of confinement approached I prepared myself an ointment, composed of belladonna and cosmoline, with a view to carry out Dr. M.'s plan of treatment. October 12, 1880, was summoned at 7 A. M. Patient had been having slight pains coming on at intervals of twenty minutes, since $5\frac{1}{2}$ A. M. An examination satisfied me that labor was setting in—condition of perineum much the same that it was just a month previous. I anointed the external parts thoroughly with the belladonna and cosmoline. I also saturated a sponge with the ointment, just large enough to be retained without discomfort, in the vagina, and introducing it, allowed it to remain until my next visit at 8 A. M. At 8 A. M. I removed the sponge and found the os dilating, the pains coming on oftener and more severe, and the soft parts somewhat more relaxed. Applied more ointment to the sponge and reintroduced it, allowing it to remain until 8.45, when upon its removal the first stage of labor was discovered to have been completed. The pains were severe but not violent. Sponge reintroduced and the external parts well anointed. 9.20, sponge removed for the last time, having been almost constantly in contact with the mucous membrane of the vagina for two hours and twenty minutes. Head well down in the pelvis, and the os easily pushed back over the occiput with the fingers. Artificial dilatation was vigorously begun, in accordance with the instructions given by Dr. Mossman. At 10 A. M., the head was distending the perineum at every pain, but

there was no apparent relaxation of the parts. The pains were all that could be desired. For one long hour I resisted the advance of that head. Satisfied, at the end of that time, that it was a mechanical impossibility, I, with a small curved bistoury, made two lateral incisions, one on either side, through the thin edge of the benumbed labia to the extent of half an inch, and doing it during a pain the patient was not aware of what had occurred. At 11.15, the child was born. The perineum was intact, and as soon as the placenta was removed two delicate silk sutures closed the edges of the two wounds, which healed by first intention, and the patient's person was not exposed in the least. This is the first case in which I have used belladonna, and although I am certain no benefit was received from it, it was no doubt an exceptional one. That it has the power to relax muscular fibre is a well established fact, and the whole procedure is well worthy the careful consideration of the profession, and will no doubt be productive of great good. But where belladonna and manual dilatation fail, lateral incisions will always save the perineum and do no injury to the patient, not even cause her discomfort. Although the prevention of this serious lesion is of the greatest moment, the best treatment of it after it has occurred is also not to be overlooked. The torn parts must be held together by mechanical means, long enough for them to unite, and the proper time for the operation is immediately after the occurrence of the necessity demanding it. Prof. Wilson, of Baltimore, in a private letter of April 26, 1881, says: "I have had great satisfaction in the use of serres-fines in lacerated perineums, when applied immediately after labor, when the laceration has not extended through the perineal body or through the sphincter ani. Even when it is deep down into the perineal body, if the shanks to the serres-fines are long, and the lacerated surface is first washed with a weak solution of carbolic acid and water, so as to arrest the tendency to suppuration, and the parts are accurately brought together and closed immediately after labor, union will usually be complete in three days."

Trusting that it will not be amiss, I subjoin a few observations made at the late meeting of the American Medical Association, held at Richmond, Va., upon the subject of Obstetrics and Gynæcology. Although the room devoted to the use of the Section on Obstetrics and Diseases of Women was spacious, it was filled to overflowing on Tuesday, the first day of meeting; there were present some of the leading men in the profession. Dr. Paul F. Munde, of New York, read a paper on the use of pessaries in the treatment of uterine displacements, which elicited a spirited discussion on the subject of their uses and abuses.

Dr. R. Beverly Cole, of San Francisco, Cal., in the course of his remarks, called attention to atony of the uterus, which caused it to sag down in the vagina, and was liable to be mistaken for retroversion; he had seen about twenty well-marked cases and had found that the careful use of an improvement on the galvanic intrauterine pessary, suggested to him first by Simpson, of Edinburgh, to be of great value as a stimulant to the uterine nerves and vessels, causing the atrophied organ to increase in size and tone, and where menstruation had ceased before the time for the menopause, to re-establish that function. Dr. Cole also called attention to a very excellent modification of Dr. Albert Smith's pessary for retroversion and anteversion. The improvement consisted in the attachment of a bow or cross-bar by a watch spring on either side, which, when in proper position, would constantly exert pressure in retroversion in Douglas's cul-de-sac and in anteversion, and *vice versâ*.

Dr. F. C. Laremore, of Mount Vernon, presented a most remarkable specimen of a fibroid tumor of the uterus, which had undergone calcareous degeneration. It was about the size of a large fœtal head, weighing four pounds and one ounce. This specimen was found in the uterine cavity. At some points the calcareous shell or covering was one-fourth of an inch in thickness. It had evidently been originally an intramural fibroid. The question as to the existence of a capsule surrounding intramural fibroids, and the character of the same, was discussed very fully by Drs. Byrd, of Brooklyn, Marcy, of Boston, and Morris, of Baltimore. It was pretty generally believed that the investing membrane could not be considered a capsule in the true sense of the term, but condensed uterine tissue.

Dr. Marcy, of Boston, exhibited a series of very valuable soft-rubber double catheters or drainage tubes, which are well calculated to wash out the cavity of the uterus, bladder, or stomach.

Dr. H. P. C. Wilson, of Baltimore, exhibited a new instrument for dilatation of the cervical canal in conditions in which it was dilatable, as after retained placenta, or portions of the same remaining after early abortion. The subject called up a long discussion upon the propriety of using forcible dilatation in any case. Dr. Cole, of San Francisco, opposed the method, and regarded it as being very dangerous, but favored the use of tents, and had never seen septicæmia follow the use of them in a practice of twenty years.

Dr. Paul F. Munde had used forcible rapid dilatation in hundreds of cases, and had never seen any bad effects ensue.

The question, "Are there any known unmistakable signs of pregnancy?" was discussed for two hours, by half a dozen or more of

the gentlemen present who were teachers of Obstetrics and Gynæcology, and although they were all willing to admit that they could in all cases arrive at a pretty correct diagnosis, they were liable to be in error. Although much is claimed for the increase of temperature of the uterine neck, during the beginning of pregnancy, there has not been sufficient observation made to entitle the sign to any more credit than morning sickness, toothache, or the change in color of the vaginal mucous membrane. It was a subject of comment that the Section on Obstetrics at the past meeting of the American Medical Association was better attended, there was more interest manifested, and its meetings continued longer than any of the other Sections. And while there was very little really new original matter presented, subjects of great importance, about which doubt exists, were ably discussed by gentlemen of extensive experience.

ON THE IMPORTANCE OF LOCAL TREATMENT IN CONGESTION AND INFLAMMATION OF THE CERVIX UTERI IN PREGNANCY.

By JACOB PRICE, M.D.,
WEST CHESTER.

Scarcely secondary in importance to the saving of life, is the duty resting upon the physician of alleviating suffering; of lifting from the afflicted the load of physical and mental anguish that so often rests with such crushing force as to determine a fatal result in cases that, with this removed, tend to spontaneous recovery. The conservation of comfort thus often becomes the conservation of life. The importance of these axiomatic principles has led me—in response to the request of your Committee of Arrangements to prepare a paper for this meeting—to ask your attention, during the brief period allotted to me, to a few thoughts and observations upon the importance of local treatment in inflammation of the cervix uteri during pregnancy. I am also led to select this subject because the conclusion has been forced upon me, that in many cases its existence is not recognized by the physician, and often, when detected, its true bearing upon the comfort, and indeed the safety of the patient, is not properly estimated.

The frequency of cervicitis during pregnancy is much greater than is generally supposed. The over-mental strain and physical labor, involved in the establishment and administration of a new home, the late hours and prolonged standing at the receptions usually following marriage, as well as the disturbing influences to which the organ is apt to be subjected in early married life, all conspire to its development in primiparous women, and the timidity and reticence of these are likely to keep the true difficulty hidden, unless the medical attendant is carefully upon the alert to detect it. The pressure of the fœtus, gradually increasing, is an aggravating influence, bringing to light a cervicitis too slight for previous notice, and which now becomes a source of the most serious constitutional disturbance. The symptoms developed by the cervicitis of the

pregnant are not peculiar, except for their exaggeration. The local suffering is usually much intensified. The reflex disturbances, viz., sick stomach and general ganglionic depression, are in some cases most profound, occasionally leading to a fatal result. Without consulting authorities, five such cases have come to my knowledge. All these except one were primiparæ.

The first occurred in 1862, my own patient, aged about nineteen years; always a delicate girl. She was the wife of a soldier, and came to West Chester late in her pregnancy, about the seventh month. The vomiting had been persistent after the first month. Her weakness and emaciation were extreme. Soon after she came under my care I called Dr. Isaac Thomas in consultation. We decided to empty the uterus; which was done without difficulty. She died in one week after; never having made any gain of strength, though taking food. There was in this case no examination of the uterus.

The second case was a patient of the late Dr. Worthington, and occurred in the summer of 1863. Death took place at about the fourth month. There was no examination of the uterus, and what complications were present I have not been able to learn. This patient was also seen by Dr. Wm. Goodell.

The third case occurred in 1879 in the practice of Dr. E. Marshall, of Northbrook, Chester County, Pa., to whom I am indebted for the following notes: Patient aged twenty-one years; married three months and six days when taken ill; menstruated once after marriage; sick twenty-seven days; always a delicate, chlorotic girl; uterus not examined. Odor from painting interior of dwelling seemed to be the exciting cause of the severe symptoms. Dr. Wm. B. Brinton, of West Chester, saw the patient three times in consultation.

Fourth case occurred in 1880 in the practice of Dr. E. L. Duer, of Philadelphia, who has kindly furnished me with the following notes: It was a second pregnancy; the sickness was moderate for two months; after that very persistent, resisting completely all medical treatment. For six weeks she was sustained by nutritive enema. Partial relief was obtained by daily dilatation of the cervix; but the vomiting, emaciation, and debility progressed with but short remissions. The kidneys acted fairly, and urine was not albuminous until four days before death. They then almost failed to act, and the little urine passed was highly albuminous. She became totally blind; vomiting ceased, and she took a fair amount of stimulants and food by stomach, but with really no good effect. She died about the end of the fourth month of her pregnancy. The autopsy

(of the abdominal organs only) revealed intense engorgement of both kidneys. The right was twice its normal size, the left one somewhat enlarged, both dark colored and softened; other organs in good condition. Fœtus was lying in the vagina, quite decomposed; placenta firmly adherent at its normal site in the uterus.

Fifth case was at Malvern, Chester County, last fall, a patient of Dr. Riccabaugh. He saw her first in sixth week of pregnancy; I saw her three weeks later. Nausea and vomiting were very persistent; patient much emaciated and unable to rise from the bed; urine albuminous, granular casts; patches of epithelium and some blood-corpuscles were present. There was some pain and extreme tenderness on pressure over uterus. Vaginal examination disclosed a tumefied and congested os and cervix. The uterus almost fixed; distinct infiltration of peri-uterine cellular tissue. I painted the os and cervix with a mixture of iodine, carbolic acid, tannin, and glycerine, and applied a cotton-wool tampon saturated with glycerine to cervix. For one week the sick stomach was diminished and she retained some food. After ten days I was called again on account of return of sickness. Made then another application, which as before held the vomiting in check; but the evidences of uræmia, advancing peri-uterine cellulitis, and extreme nervous prostration steadily increased. The propriety of evacuating the uterus was canvassed and decided negatively. In this we were thoroughly sustained by Cazeaux and other leading authorities. She died in the fourth month of her pregnancy, from exhaustion and probably uræmia.

It is not necessary before this audience to dwell in detail upon the course pursued by an obstinate case of the sick stomach of pregnancy. The picture is familiar to you all. What one of you has not been called to a timid, shrinking woman; who in her new home, often remote from the tender mother to whom she has always turned for comfort and sympathy, with husband absent or engrossed with business cares, the female attendants strange and too often critical or ready to meet any complaint with jest or sneer.

I trust that none of you, whilst regretting the inutility of your medicines for her relief, have failed to give her a care and sympathy as tender as that of the mother whose absence she deplores.

I do not propose to canvass the routine of drugs that have been used to meet these distressing symptoms. Time does not permit, nor does the scope of this paper contemplate it. I can only with you confess their utter inefficiency in many cases, and pass on to make a few observations upon what I conceive the true pathology of obstinate cases of the sick stomach of pregnancy.

Early in practice, perhaps from noticing the relief of sympathetic disturbance of the stomach and general ganglionic depression by local treatment of the cervicitis of the nonpregnant, I began to make vaginal examination in cases of obstinate sick stomach of the pregnant, with the result of always finding evidence of congestion or inflammation of the cervix, and always affording more or less relief by local application. It is not alone the nausea and vomiting that are relieved, but also the peculiar ganglionic depression so forcibly described by Tilt. The pain resulting from the gradual obliteration of an inflamed cervix is much diminished. Nor does the relief end here; we are all familiar with the suffering in the first stage of labor from an inflamed and indurated os uteri. By appropriate local treatment this difficulty is much diminished.

I will not now detain you with the details of numerous cases. Two or three will serve to illustrate the general plan I have pursued and its results. Early in February, 1879, I was called to see a young woman about ten weeks advanced in her third pregnancy. For about a month she had suffered intensely with nausea, vomiting, and general nervous depression; not a waking moment was free from distress, and she slept but little; a great part of her time was occupied in attending to the flow of saliva and the effort to vomit. After a month's ineffectual effort to obtain relief by medical treatment at the hands of her regular adviser, one of the most intelligent physicians in Maryland, and having suffered in her former pregnancies throughout the whole term, she became thoroughly disheartened. In this condition she came to the home of her parents in West Chester. Her symptoms were then alarming; but little food was retained; she could scarcely rise from the bed. It was unadvisable to lose time in the further trial of medicines. The speculum revealed an os and cervix tumefied, vessels congested, and a copious discharge of thick mucus. The vaginal portion of the cervix and its canal for three-fourths of an inch were freely painted with the glycerate of iodine, carbolic acid, and tannin. A tampon of absorbent cotton, saturated with pure glycerine, was placed in contact with the vaginal surface of the cervix, and this kept in sitû by a larger tampon of dry cotton. The effect upon the nausea and vomiting was immediate. In a few days she was able to take nourishment freely. The applications were repeated every third day. The tumefaction and redness of the cervix, and the mucous discharge steadily diminished. She returned home at the end of four weeks, well, and continued so to the end of her term.

She afterwards wrote me in grateful terms of the relief she had

experienced, and the duty she felt to encourage others who suffer to try the same means of relief.

Another equally striking case was under treatment last summer. The patient in four previous pregnancies, occurring in one of the eastern cities of this State, had suffered all through with nausea, vomiting, and general depression.

That you may realize, gentlemen, more fully than any language of mine can make you, the mental and physical suffering in many of these cases, and perhaps be led to come more resolutely to their relief, I will let this lady draw the picture in her own graphic words. They came to me in the following cordial note, not long after the birth of her child. "Dear Doctor: Baby gives me time now, and I will do what I wished to do earlier, tell you of the benefit I received from your treatment before her birth. You cannot fully appreciate the relief, because you are a man; no one but a woman, and one who has suffered as I have, can do so.

"Having read that a 'sick pregnancy was a safe one,' I consoled myself, before the birth of four children, with the thought that I would come very 'safely' through my trouble, as I had come very 'sickly' through my pregnancy. Every night when I went to bed I felt thankful that one day more was gone, and every morning I awoke with the feeling that another weary day must be passed. With each day came nausea that no medicine relieved, and such weakness that I cared for nothing. The most trivial household duty was a burden; I was comfortable nowhere; only a little less uncomfortable on the bed, where I was compelled to spend most of my time. Such was my condition when you suggested local treatment. I felt a change for the better soon after you began it, and when I went away from home, three weeks later, I took pleasure in the society of my friends, and could join in their walks with comfort. On my return I was able to take charge of home duties, and felt well, contented, and happy. I feared that, perhaps, I had benefited myself at the expense of the child's welfare, but when baby arrived, healthy and strong, and I gained strength so rapidly afterward, I realized fully what a blessing the treatment had been to me."

This treatment differed in no essential feature from that described in the previous case. In the eighth month of her gestation she had some return of the local inflammation, from over-exertion in the care of her large family, and with it a return of the same constitutional disturbance, though less urgent. She was quite ready to have the same treatment, and the result was prompt relief. I had never before resorted to local treatment so late in the pregnancy.

The application that I use most frequently is iodine, crystallized

carbolic acid, and tannin, each two drachms, dissolved by the aid of heat in one ounce of the best concentrated glycerine.

Dr. J. Henry Bennett, who perhaps was the first to thoroughly establish the efficiency of local treatment in inflammations of the os and cervix uteri, and who undoubtedly was the first to employ it during pregnancy, depended mainly upon the use of nitrate of silver, as did the late Dr. W. L. Atlee, of Philadelphia, and also, I believe, our eminent and honored fellow-member, Dr. John L. Atlee, of this city. I think as good results are obtained, with less suffering, from the combination already referred to.

The use of the speculum is not always essential in treatment. I have occasionally obtained satisfactory results with medicated suppositories, placed against the cervix, by means of the hard-rubber and piston. In some cases simple anodyne and astringent vaginal injections have proved sufficient to give relief Within a month I was consulted by one of my neighbors in regard to a very obstinate case of sick stomach, about the fourth month of pregnancy, which he feared would result badly. Local applications were suggested, but as the patient lived at a distance, it was concluded to use first vaginal injections of solution of alum (a teaspoonful to a pint of water) twice daily. In three weeks the sick stomach had passed away.

A word in regard to the *safety* of these applications. With proper care on the part of the operator, there is in my opinion no danger of inducing abortion.

The sound or probe should be well coated with absorbent cotton, then saturated with the solution and passed very gently a short distance (not more than three-fourths of an inch) up the canal of the cervix, and afterwards swept over the whole vaginal surface of the cervix; the cotton tampons are then applied. I greatly prefer the small Nott's speculum as causing the least vaginal distension. This proceeding is certainly safer than the suppository tube or vaginal injections in unprofessional hands. When the latter are directed, the end hole of the vaginal tube should be securely plugged, and the caution given to use but little force. The application of a cotton tampon saturated with the very best glycerine (none other should be used) is an important part of the process. Its osmotic property rapidly depletes the distended vessels of the cervix, thereby rendering more effective the astringents applied.

I am aware that to many of you what I have said is familiar, perhaps trite; but yet when we consider the gravity of the suffering and in many cases the danger to life from the sick stomach of pregnancy, I have been astonished at the meagreness of the literature of

the subject. Dr. Bennett is the only author I have examined who insists upon the dependence of obstinate vomiting in pregnancy upon "inflammatory ulceration of the cervix." Cazeaux, who devotes more space to the subject than any other author, quotes this opinion of Bennett only to controvert it. Leishman quotes largely from Cazeaux and follows him in his conclusions; and both, while confessing the inefficiency of the means of relief proposed, throw but little light upon the pathology.

These distinguished authors, doubtless, would have reached a more successful practice, had they been thoroughly imbued with the views so clearly enunciated by Professor Pepper in his able address in medicine, last week, before the American Medical Association, at Richmond, Va.; in which he urged physicians to seek out and cure the local inflammations upon which the most grave constitutional symptoms very often depend. It is the discovery and removal of these that mark the acute diagnostician and the successful practitioner.

Gentlemen, I will not detain you longer from the more valuable papers that are to follow. If what I have said shall induce any one of you to give greater care to these too often neglected sufferers, as they may come to your notice, and if, by the views I have inculcated, or by others, better founded in truth, that your own observation or thought may develop, you, haply, bring relief to *one* such sufferer, however humble, I shall be amply rewarded for the labor and the thought the preparation of this paper has put upon me.

AFFECTIONS OF THE LACHRYMAL PASSAGES; THEIR NATURE AND TREATMENT.

By S. D. RISLEY, M.D.,
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The affections of the tear passages are among the more frequently occurring forms of eye disease, falling under the notice of the ophthalmic surgeon. Not only the frequency of their occurrence, but the great annoyance they cause the patient and the serious impairment of vision they so frequently occasion, elevate them to a position of great importance in the long category of diseases affecting the eyes and their appendages. The amount of disturbance from these affections varies from a slight retention or overflow of tears to violent acute inflammations of the lachrymal sac, with swelling or œdema of the eyelids, even jeopardizing the eye itself. Even in the simpler form, however, it is impossible that the visual function can be normally performed. It is not the purpose of this paper to treat of the diseases of the secreting apparatus, the lachrymal gland, or of the rarer forms of obstruction of the tear ducts, but to discuss the clinical history, etiology, and treatment of the more commonly occurring derangements of the *drainage system*—the puncta, canaliculi, lachrymal sac, and nasal duct.

The principal function of the lachrymal secretion seems to be the constant moistening of the cornea and conjunctiva and the washing from the delicate corneal surface particles of dust or mucus which would otherwise collect upon it, mar its transparency, and lead to impairment of vision. A fresh supply of tears is constantly secreted by the lachrymal gland, and flowing over the corneal and conjunctival surfaces passes to the opposite side of the eye and is rapidly carried away by a delicate drainage apparatus. Although the eye is thus, even in the normal state, constantly bathed in tears, nevertheless, retention of the normal secretion by any derangement of the waste tube soon leads to serious trouble with the tissues with

which it lies in contact. The conjunctiva, rebelling against its presence, as in the case of any mild irritant, soon becomes hyperæmic; the lower tarsal conjunctiva thickened and opaque; there is increased secretion of mucus; the caruncle and semilunar folds become red and swollen, giving to the eyes a red, watery, and irritable appearance. When exposed to the wind or other influence, *e. g.*, the emotions, which for the time being causes an extra secretion of tears, they flow over onto the cheek. If the obstruction be complete, the epiphora is constant.

Ordinarily, however, in mild cases, or in the earlier history of the trouble, when the occlusion of the duct is still incomplete, the tears are simply detained in unusual quantity in the *cul-de-sac* of the conjunctiva and may be seen forming a little lake at the inner canthus, and piled up as a glistening line on the edge of the lower lid, where they are kept closely in contact with the corneal surface against which they are heaped up by capillary attraction, forming a thin layer of fluid over a considerable portion of its surface. For distant vision this rarely causes much disturbance of sight, since the lower margin of the pupil still remains above the layer of fluid. For reading or near work, however, the case is different. In reading, the book is usually held below the line of vision for more distant objects. The eyes are consequently turned downward and the pole of the cornea is now buried beneath the pellicle of tears, causing an irregular refraction of the light entering the pupil, and a corresponding interference with the distinctness of vision, since the images projected upon the retina are no longer well defined. Thus is introduced all of the chain of symptoms so frequently brought about by the anomalies of refraction in the dioptric system itself. The asthenopia in turn causes an extra secretion of tears under any protracted effort at near work, thereby adding to the difficulty upon which it at first depended. Neglected or treated without recognition of the initial trouble, the conjunctivitis grows daily worse. The conjunctiva covering the lower tarsi becomes more and more thickened and opaque until the lid is not infrequently rolled outward by the thickened conjunctiva pressing against the ball. The punctum is now pushed forward entirely out of the lake of tears at the inner canthus, and the retention is more complete than before. They now flow over on to the face more or less constantly, or must be constantly wiped away by the handkerchief. The edges of the lids become rounded, red, and thickened. The ciliæ become distorted or fall out. The edges of the lids become red and unsightly, scales of the dried mucus and extra secretion from the Meibomian and fat glands collect along the edges at the roots of the remaining

cilia. Small ulcers form along the margins of the lids between the cilia, or suppurative inflammations of the glands at the root of the lashes or in the Meibomian glands themselves. The constant overflow of tears and frequent use of the handkerchief to dry the face irritates the adjacent skin, frequently causing an unsightly eczema of the surrounding parts. Very frequently the cornea becomes involved, and keratitis is set up, resulting in corneal opacity and corresponding disturbance of vision.

The history is often, however, very different from the one I have briefly sketched. The onset of the disease may be in an acute catarrh of the lachrymal sac or nasal duct, which under judicious treatment may go no further than an acute congestion of the lining mucous membrane, with a temporary stoppage of the bony duct from swelling of its lining membrane. Under rest and freedom from exposure, or aided by astringent collyria, they often subside, and no sign of the catarrh remains after forty-eight or seventy-two hours. The termination is not always, however, so fortunate. The simple mucous catarrh passes very frequently over into suppurative inflammation of the walls of the sac, with redness, great distension, and pain. The swelling manifests itself on the face over the region of the lachrymal sac as a red, extremely tender, fluctuating tumor; which left to itself, sooner or later, opens outward on the face, and, when neglected, is liable to result in a fistulous opening, through which the tears and mucus will flow outward onto the cheek, furnishing a constant and conspicuous annoyance.

It far more frequently happens, however, that this acute purulent inflammation, which constitutes the blennorrhœa of the lachrymal sac as treated of in the books, occurs in persons suffering already from diseased lachrymal passages with obstruction. This occurrence is, indeed, so frequent that it is the strongest argument against neglect of the minor obstructions of the duct. Nothing is more common than to see cases of blennorrhœa of the sac, in which a careful questioning reveals the fact that for many months or years the tears had been flowing over the lids, especially when exposed to the wind. It is indeed very common to neglect the minor forms of lachrymal obstruction with chronic inflammation of the lachrymal sac. This fact depends in part upon the absence of pain in the simple, chronic, partial obstruction of the tear passages—and the patient submits more readily to the annoyance due to the retained tears than to the surgical treatment necessary to his relief. The neglect is also, and not unfrequently, due to a want of confidence in the effectiveness of the measures proposed for his relief, and he submits only for the relief of a painful or what he himself regards as a serious disease.

One important and legitimate cause of distrust is the bad result following the unscientific measures adopted by a former generation of surgeons, the influence of which is still felt, not only by the laity, but by many physicians also. Patients are constantly advised that there is nothing to do for their tear-duct trouble, and so they come to regard it as an incurable malady, which they must endure as philosophically as possible. Indeed such an opinion is strengthened by some good authorities. Carter, *e. g*,[1] says: "I have come to the conclusion that the best treatment, in a great number of instances, is that which is only palliative, and that the best surgery, generally speaking, is to leave the obstruction alone." That this is bad advice I am convinced from the following considerations: first, that the results of judicious treatment do not justify so hopeless a prognosis in these cases; and further, by the important clinical fact that left to themselves they grow worse in the vast majority of cases, and frequently lead to conjunctival and corneal disease with impaired vision; that they are, furthermore, liable to attacks of acute inflammation of the sac, especially where the obstruction is in the nasal duct; and lastly, by the fact that it is quite out of the question for an eye to function safely and comfortably with a lake of retained tears in the cul de sac of the conjunctiva and heaped up along the margin of the lower lid.

Etiology and Treatment.—Much of the disappointment in the results of treatment has, I am convinced, been due to a want of appreciation of the cause of the disease in individual cases, from a want of care in diagnosis as to the part of the drainage apparatus involved, and from unnecessarily harsh treatment. The obstruction or disease of the lachrymal passages may be but a local expression of some constitutional dyscrasia. This is especially apt to be the case when present in children, and is then a manifestation of struma or syphilis, and quite uniformly recovers under the general measures for the relief of these affections, and that without any special local treatment other than astringent collyria. I recall, among adults, the case of a vigorous and apparently healthy man æt. 35, who consulted me for obstruction of the tear-duct with subacute blennorrhœa of the lachrymal sac. There was marked conjunctivitis, and the probe revealed a moderately tight stricture of the nasal duct near the lower end of the sac. The case failed to improve under local treatment, including repeated dilatation with Bowman's probes. At one of his visits he incidentally let fall a remark about the bad health of his wife and children, which led me to

[1] Edited by Green, 1876, p. 201.

inquire into the nature of their troubles. The usual syphilitic family history was elicited at once, and he acknowledged the primary sore, followed by non-suppurating bubo and secondary symptoms. Drawing his heavy hair aside, he showed me a swelling on his scalp with a crucial incision in it, which had recently been made by a physician, supposing it to have been an abscess, but which was in reality a node of the scalp, since it, with his lachrymal trouble, vanished in a week under iodide of potassium, and mercurial inunctions.

An occasional factor in the production of lachrymal obstruction is disease of the nasal passages. In these cases, by simple continuity of tissue, the disease extends into the nasal end of the duct, and leads to the obstruction. I recall the case of a gentleman who for many years had been annoyed by the overflow of tears from his left eye. I discovered a deformity in the nasal bones on that side which brought the mucous surfaces in contact. At this point there was an extensive superficial ulceration in the Schneiderian mucous membrane, which rapidly disappeared under treatment, and with it the lachrymal obstruction. In the diagnosis of each case it is important to discover the part of the drainage system at fault, since the obstruction may occur at any part of it, between the puncta in the margin of the lids and the opening of the nasal duct into the inferior nasal meatus. If the retention be due to obstruction or closure of the puncta, or canaliculi, the lachrymal sac will be found empty. The completeness of the retention of tears and extent of the epiphora furnish a good indication of the completeness of the closure; *e. g.*, if but one punctum, the inferior, be obstructed, the superior will be sufficient to carry off into the sac the amount of tears ordinarily secreted, but when exposed to the wind or under the influence of the emotions it is insufficient, and the tears will flow on to the face, or must be absorbed by the handerchief.

On the other hand, if the obstruction be in the nasal duct the lachrymal sac becomes distended by the collection of tears and mucus, forming a small tumor at the inner canthus, and slight pressure over it forces its contents back into the conjunctival sac.

The retention is due in a very large number of cases to partial or entire closure of the puncta or canaliculi, usually due to disease of the conjunctiva or margins of the lids. Cases of chronic granular lids, or long standing *blepharitis ciliaris* are very frequently aggravated and protracted by the new symptom of retention of the tears, of which the original inflammation had been the direct cause. It very frequently happens that in the treatment of these cases of blepharitis or chronic conjunctival disease, the very first thing to

be done is to treat the lachrymal obstruction, before any improvement can be effected in the disease of the conjunctiva.

This brings me to the important relation existing between the troublesome anomalies of refraction and convergence and the lachrymal obstruction. In fifty-six cases of lachrymal obstruction treated in private practice, twenty-three, or 41 per cent. of them, had astigmatic eyes, and in nearly all of these 23 cases, no permanent improvement followed the treatment until the eye-strain was removed by correcting glasses. In a large number of the cases there is unquestionably the relation of cause and effect between the eye-strain and the lachrymal disease. It is brought about, however, through the constant congestion and irritation of all the tunics of the eye, the conjunctiva and lids included. Every experienced ophthalmic surgeon is well aware of the very great frequency with which the inflammations of the cornea, conjunctiva, and margins of the lid undoubtedly depend upon this source of irritation, and the lachrymal obstruction is only a part of the same pathological chain.

In the treatment of lachrymal disease is presented the necessity for all the acumen and judgment anywhere required at the hands of the surgeon. When we remember the importance of the visual function endangered by the disease; the peculiar and complicated anatomical relation of the lachrymal duct to surrounding parts; that we are treating a concealed membrane, inflamed and fragile, which throughout a large part of its area is the lining membrane of the hard and bony walls of a sinuous canal, with uneven walls, showing numerous prominences and depressions; it will be realized that a delicate and important matter is undertaken in the endeavor to treat it.

The unsatisfactory results in treating the inflamed and obstructed duct are very frequently due to a failure to recognize the etiology of the disease. If we are treating an inflamed mucous membrane elsewhere, due regard is had to the various dyscrasia that may influence its recovery, and the same attention should be given in treating inflammation of the tear passages. Again, it is manifestly illogical to probe the lachrymal passages for a narrowing or closure of their calibre, when the condition of irritation or inflammation is kept up by eye-strain due to an error of refraction. These preliminary considerations having been duly attended to, how shall we treat the lachrymal affection itself. If the retention of tears is due to a closure or constriction of the lachrymal puncta or canaliculi, the task is a comparatively easy one. The day has passed when the unsightly style was inserted in all cases into the

nasal duct through an incision into the sac under the tendo oculi. This plan of procedure is now rarely if ever resorted to.

The plan devised by Mr. Bowman of first slitting up the canaliculus to render the sac more accessible, and at intervals inserting a style or probe from the inner canthus, has entirely replaced the former method. When, however, the obstruction is in the canaliculus or punctum, this is unnecessary, since dilating the delicate structure is usually quite sufficient. I have many times seen conjunctival irritation and partial retention of tears removed after dilating the punctum only. The same end, to be sure, would be gained by at once slitting up the punctum and canaliculus, but it is unnecessarily severe when the same result may be reached by simpler means.

The instrument I use for this purpose is a blunt-pointed coarse sewing needle mounted upon a handle for greater convenience of manipulation. The instrument is in reality a very sharp cone, so that while the point readily enters the fine punctum, the increasing diameter of the needle gradually dilates the opening. Many of the troublesome cases of conjunctival hyperæmia and weak eyes are due to a partial retention of the tears depending upon a constricted punctum or canaliculus. The retention in many cases, although sufficient to cause all the annoyance to the patient, is nevertheless very readily overlooked. The rapid recovery after a few probings with the needle-dilator is often extremely gratifying.

When the obstruction is in the nasal duct, however, the treatment is much more difficult. It will then be necessary to slit up the canaliculus, thereby converting it into an open canal. The subsequent conduct of the case will then depend entirely upon the nature of the case in hand. If it is a case of long standing, with no history of acute inflammation, and the stricture of the duct prove to be a rigid one, the prognosis is less favorable than in the acute blennorrhœa of the sac. The method of procedure which has in my hands given the best results, has been to introduce a probe sufficiently large to pass tightly through the constricted duct. The instrument is allowed to remain from ten minutes to half an hour, and should be employed at least on alternate days. When withdrawn it should be found firmly grasped by the stricture, so that more force is required to withdraw it than was necessary for its introduction.

I regard this as important, since it is my belief that the value of the probing depends not so much upon dilating or breaking the tissues composing the stricture as upon the pressure of the thickened tissues between the probe and the hard bony walls of the duct. Ordinarily partial relief soon follows repeated applications of the pressure, and even if, in many cases, entire removal of the malady

is not enjoyed, they are nevertheless so far benefited that they are content to undergo the occasional introduction of the probe. In the early part of the treatment the probe should be introduced on alternate days, or even daily is at first well borne in some cases; but too frequent probing often seems to do harm.

The intervals should be gradually lengthened until the necessity has disappeared. If no relief follows the probing, the careful injection of some irritant is often useful, but this must be done with the greatest caution, since the anatomical relations render the duct and sac liable to take on inflammatory action. The method which has served me best is to inject, through a hollow probe, a solution of sulphate of zinc ij to iv grains to f℥j, or a ij gr. solution of nitrate of silver. The purpose is to set up a suppurative inflammation of the mucous membrane, which, after recovery under careful treatment, leaves the stricture much more amenable to treatment. I cannot refrain here from warning against the use of too large probes, or too forcible or rude handling of the smaller ones. The long-inflamed membrane is friable and readily torn. It often feels soft and spongy before the end of the probe, and is prone to collect in a fold before it. Rude handling is apt to force the probe through the membrane, and cause it to pass forwards between the bone and mucous lining—an accident which is almost sure to retard the progress of the case, if it does not make the patient permanently worse. The rule as to the size of the probe is, that it should pass tightly through the stricture. It is rarely necessary to pass a larger one than No. 4 or No. 5 of Bowman's series. I cannot object too strongly to the use of the conical dilators formerly employed and recently revived in the large probes urged by Dr. Theobald, of Baltimore, and some others. Some of these probes are too large to pass through the bony nasal duct of many dried preparations, and when lined by the soft parts, even the medium size could not be passed without doing violence to the tissue. The size of the duct, however, varies in different skulls, and in many dried preparations the largest size will pass without difficulty.

In treating acute purulent catarrh of the lachrymal sac, it is rarely necessary to open the sac under the palpebral ligament, since its contents can usually be evacuated through the opened canaliculus by pressure over the sac. After emptying the sac in this manner, it should be carefully washed out daily with mild astringent lotions by aid of Annel's syringe. Solutions of alum gr. iv to f℥j or a saturated solution of boracic acid are probably the most useful for this purpose. At intervals of a few hours the patient may instil into the conjunctival sac one of these lotions after first empty-

ing the lachrymal sac by pressure. The tears and lotion together fill the sac once more, which should again be emptied by pressure, if possible forcing the contents downward into the nose. When the acute symptoms show evidence of subsiding, the probes should be passed through the nasal duct, or if the operation is not too painful, it may be done with advantage from the outset.

Even where the opening upon the face has occurred spontaneously, it rapidly closes under the treatment suggested, and the tears flow once more through their natural channel.

In persons advanced in years with lax tissues, the retention of tears is frequently due to the falling outward of the lower lid, so that the punctum is no longer in the lake of tears, and its function is consequently interfered with. It would of course be as unnecessary as it would prove unavailing to probe the lachrymal passages in these cases. The simple slitting of the duct will, however, occasionally relieve the symptoms by allowing the tears to enter the open canaliculus between the punctum and lachrymal sac.

REST IN NERVOUS DISEASES.

By JOHN CURWEN, M.D.,

WARREN.

Rest is that for which every one labors and longs with eager desire. It is the relief from exhausting exercise of body and harassing anxiety of mind. It is the bright spot in the near or distant future which hope leads every one to keep the eyes and the heart's desire intently and earnestly fixed upon, and the eager striving, the arduous duty, the lengthened tedious labor, and the exhausting fatigue are all borne patiently in the confident expectation that the period of rest will soon arrive and relief will then be had. Though men fail fully to realize and enjoy what is both a permission and a command, they never relinquish the idea that in some manner, vague and undefined it may be, their constant efforts will somehow enable them to enjoy it.

Medically speaking, rest is the change from a condition of actual effort to one of calm and quiet, the demand of the bodily organs for relief from the constant strain put upon them, of the mental powers and nervous system for a change from a state of steady pressure and prolonged tension to complete relaxation, in order that the physiological and psychical acts may all be normally performed, and the whole frame be made to obey the ordained laws of its being in the requisite renewal and recuperation.

How shall we turn this cherished desire to our aid in the relief from suffering and disease in those who labor under those most distressing forms of disease characterized by a condition so constantly and distressingly present? the very reverse of what we are considering.

The recollection of some plain physiological facts will materially assist us in the elucidation of this problem. Healthy innervation depends on full and normal nutrition by those elements which are essential to the proper growth and maintenance of every part of the system, and that everything in the form of food or other indulgence which interferes with this should be relinquished; that labor and

exercise of every kind involve a waste of tissue and an expenditure of nerve power in proportion to the effort made; that following every effort there will be a relaxation and a demand for a period in which to recuperate, or to express it in other terms, demanded by the recognized conditions of the nervous system, for every period of exaltation or excitement there will be a corresponding period of depression. In order more clearly and definitely to bring forward the points which serve to require special elucidation in this connection, it is necessary to take up the subjects in the order named, and endeavor to state clearly how the morbid conditions may be induced, and then give such special indications as may appear to be required.

Men violate the rules of healthy nutrition by the constant excess to which they are addicted in eating and drinking. The food is most generally highly seasoned with the different stimulating condiments, and they think to promote the more ready digestion of such food by the free use of stimulating drinks. This constant and unusual stimulation, together with great irregularity in eating, must in time produce the opposite state of depression as a permanent condition, because after each stimulation there will be a degree of depression, and this condition, renewed several times each day, must, as a matter of course, at no distant day induce a loss of tone and nervous energy which will severely affect the digestive powers, or the morbid action may be transferred to some other organ which will even more seriously influence the nervous system.

Then there is an opposite condition where from design, disease, or inability to procure the proper food, the nutrition has been seriously impaired and a correspondingly depressed state of the nervous system produced.

Akin to the conditions above stated will be that caused by the action, sudden or prolonged, of grief or any of the depressing emotions or malevolent passions.

The constant and, in very many cases, the excessive use of tobacco in chewing and smoking has a decided influence in altering the tone of the nervous system, and, in very many cases, so interfering with its normal action as to induce a series of disorders varying in kind and degree, but all more or less detrimental to healthy action.

Add to these the continuous excitement of pleasure or business, or both conjoined, to which so large a number are assiduously devoted, and it will be seen that an element of disorder is steadily acting which must, sooner or later, tell with decided force on some part of the nervous organization.

It will be recollected that every action, physical and mental, involves just such a waste of tissue and expenditure of nerve power

as will be needed to effect that action, and that when the system is forced to a greater degree of expenditure than can readily be regained by the ordinary mode of recuperation, an exhaustion of the forces will be experienced which must have an injurious influence, particularly should this exhaustion be continued for an undue period.

The reciprocal influence of the nervous system on the circulation and of the circulation on the nervous system is such that anything which interferes with the steady and regular action of one or the other will soon be manifest in the abnormal action or condition of one or both, and these again act on nutrition as nutrition influences them. The normal action and inter-action of all the functions is absolutely necessary to the maintenance of healthy conditions, and the point to be insisted on in this connection is the urgent need of persistent effort to obtain and retain that healthy action.

It is only repeating a truism to affirm that we live in an age of great and earnest excitement which ramifies in varying degrees, through every part of the social fabric, and no one can fail to notice the influence of this excitement on the physical and mental status of different classes, and the tendency appears to be to an increase rather than to a diminution or moderation in the causes and incidents of this high pressure.

There is a constant forgetfulness and violation of that grand ordinance that the day is ordained for labor and the night for rest, and that the penalty of the violation will be surely, though it may be more slowly, visited in some form, or that a man will be burned if he takes fire into his bosom. Each man thinks he enjoys an exemption in his own case from the penalty, and he goes forward with headlong speed, not heeding admonitions, until his brain, his heart, or some other organ shows such manifest symptoms of disease, that he is compelled to lay by, often in the very meridian of his days.

No branch of preventive medicine seems to be in greater need of earnest and persistent cultivation than that which teaches men everywhere that they must obey the laws of action and rest; that if they labor with the brain or the arms and hands, they equally require a degree of rest corresponding to the amount of labor; that a given number of hours, not less than six, must be given to sleep each night; that there must be regularity in everything, labor, sleep, food, rest, to recuperate the waste and exhaustion of nerve power, and that unless these are obtained with the uniformity which characterizes all the actions of the animal economy there must be disease.

The manner in which men endeavor to obtain rest from pressing cares and duties seems to be in urgent need of careful revision and correction. They work on for ten or eleven months of the year, often under great pressure and excitement most of the time, and then start off for a rest or relaxation, and while the scene may be changed and the character of the labor, too often is the vacation spent in exhausting travel or more exhausting excitement or indulgence, and they return to their regular life scarcely able to give that steady attention which their duties demand. Than this it is strongly insisted there is a much better way.

In place of waiting until one is nearly exhausted physically or mentally, it is infinitely better to take a certain amount of rest regularly and at stated intervals, so as to keep the system always in good working order. Every one can so arrange his business as to spend his evenings with his family and enjoy the delights and freedom of social and family intercourse, which are part of that divine ordination designed for man's greatest good, and by these means put away for the time, the harassing anxieties of business, which press many men so intently as to break them down.

Then in addition to the relaxations enjoyed in the family, let each man arrange for the unrestricted use of half a day, or much better of a whole day, a working day, in each week, or fortnight at the furthest, on which no demands of business shall intrude, and give that time sacredly to rest and recreation of such a character as will best conduce to the relief of the mind from all care, and recuperation of the body from too great labor.

It is a good rule for every man to have some subject apart from his regular business, to which he can give his time and thought, and thus cultivate his acquaintance with some branch of literature or natural science, on the principle that change of occupation is rest, but moderation must be exercised in this as in every other pursuit.

Men will insist that they cannot spare that amount of time, but it is infinitely better to take the time, make it a matter of duty to take it regularly, duty to themselves, duty to their families, and duty to society, and they will find the gain in the greater ability to attend to their duties, the continuance of good health, the freedom from exhaustion and all the other troubles of mind and body, which invariably come on those who press forward so eagerly in the race for riches and honors, that they either fall exhausted in the race or are so broken down physically or mentally that they cannot really enjoy the coveted object when attained.

But since men will venture the risk of the violation of the laws

which regulate every action of the human economy, we must assume that disease will follow, and to the relief and cure of that we must give our most faithful endeavors.

Reasoning from the causes which are known to lead to the different diseases of the nervous system, it will readily be inferred that the great majority of the cases will be of an asthenic type, and therefore requiring not only careful and cautious management, but such a course of medical and hygienic treatment as will most readily aid in restoring the system to its normal action.

In a system exhausted from any cause the obvious indication is rest to enable the part most affected to regain its normal condition, and the length and degree of rest will depend on the extent and character of the exhaustion and the constitution of the individual. What may be amply sufficient in one case may not at all meet the requirements of another, and on this account no inflexible rule can be laid down to be followed unerringly in every case, but each must be governed by conditions and qualifications incident to the individual and to the special character of the affection. The disturbance in each case must be carefully studied in its antecedents as well as its present accessories, and the kind of rest and the amount of exercise and other indications of treatment must be determined after such an examination as will serve to bring into clear view all the points needed for a careful decision. A somewhat extended observation has led to the conclusion that sufficient caution is not generally practised in the directions given to those suffering from nervous diseases in regard to exercise. The very indefinite direction is given to take exercise as often and as much as the patient can, and the patient acting under the conviction that the more exercise the sooner the strength will be regained, each day indulges in an amount of exercise which is beyond the point which his system will properly bear, and is constantly wondering why he does not gain strength, while in reality each day he is drawing heavily on his principal in place of using only the interest of that sum. For this reason it cannot be too urgently impressed on the physician that he should give specific and very definite directions as to the exact amount and kind of exercise to be taken, not leaving to the patient the decision of that point, but as carefully directing that as the medicine he prescribes. It is far better that the patient rest too much than not enough, though it is a matter for serious consideration whether in the great majority of nervous diseases too much repose can be enjoined.

Absolute rest for a time will be demanded in the earlier stages of nearly all such diseases, and graduated rest in the later stages during

convalescence; and when health appears to be entirely restored the caution to be moderate in exercise and work will not come amiss.

There are two conditions of nervous disease which seem to require somewhat different, if not at times almost opposite forms of rest to be enjoined. The first where the mind is to a greater or less degree affected, and the other where the disease is confined to the spinal system or to that of organic life.

When the mind is disturbed rest may come to it in many cases from absolute inaction in the direction of its previous occupation and a diversion to something of another kind, or it may need to have that character of repose which forbids all active thought and only amusement with the derivative principle of moderate bodily exercise for short periods of time, not carried to the extent of fatigue, but sufficient to produce healthy stimulation.

In acute mania the patient is in constant movement with the mind in the majority of cases in great commotion with great volubility of tongue and exercise of voice. In all such cases, from the milder forms to the most extravagant, when restlessness of body and volubility of tongue are excessive, the primary and urgent demand is for rest, in some cases absolute and in others moderate, to be in each case decided by the special symptoms, and this rest must be procured either by chemical or mechanical restraint, or the patient will soon be exhausted and die.

In cases of melancholy the physical forces are generally below par, and caution and prudence must be practised in all directions given in regard to bodily exercise.

In all these cases the reciprocal influence of mind and body must be kept steadily in view so that one may not be injuriously affected by the other.

When the disease affects simply the bodily conditions and the mind is not really involved, the degree of rest enjoined and the duration of that rest must be governed by the peculiar character of the disease. Some diseases of the nervous system are much more exhausting than others, and therefore more rest must be enjoined; and in others the rest and the exercise must be so carefully proportioned and regulated that neither shall have the effect of retarding the progress towards restoration. Special rules for special cases cannot be laid down in a general essay limited in its length, but it will always be safest to err on the side of insisting on rest to a much greater extent than is ordinarily done.

A gentleman, threatened with disease of the brain—the impending condition induced by a course of rather irregular living and indulgence carried on while assiduously devoted to the practice of a pro-

fession requiring active exercise of the mind and close attention to the duties necessarily involved—was advised to take physical exercise daily in order to strengthen his system, and each day he could be seen taking long walks, which any one familiar with diseases of the brain and nervous system could readily see by the peculiar gait and poise of the body were acting as a heavy drain on his nervous organization.

While there appeared to be some improvement temporarily in the physical condition, there was a steady deterioration in the nervous system, which might readily have been inferred from the excessive drain on the nervous power, manifested later by the paralytic state of the lower extremity with gradual failure of the brain. This deterioration could have been held in abeyance for a much longer period if more caution had been used in the way in which the exercise was taken and by avoiding the strain induced by such exercise.

If the manner of supply of blood to the lower spinal cord be carefully examined, it will be ascertained that, when the brain is kept in active exercise, it has a tendency to draw off the supply from the lumbar and sacral region of the cord, and on that account great caution must be used in the directions given as to the amount of walking taken by such individuals, and we learn also the reason why so much difficulty is often experienced from pain in the back, and the feebleness of the lower limbs from great and long-continued exertion. The obvious remedy for this is a graduated amount of exercise which shall give play to all of the organs and not draw too heavily on that portion which is apt to suffer soonest.

It cannot be too assiduously inculcated that active brain workers shall take each day a certain amount of physical exercise, or they will withdraw, by the increased demand for the supply to the brain, that portion of the blood which is so needful for due normal nutrition of the lower portion of the cord, and by this means induce such a debility of that part as to give rise to serious inconvenience, if not to active disease. But while urging such exercise caution must at the same time be given that it must not be of that kind which will draw too heavily on the resources of a part already weakened by a deficient supply of blood. In what way the exercise can best be taken must be determined by the character, circumstances, and special occupation of the individual.

A large number of females of different ages and conditions of life suffer constantly from languor and debility which they cannot explain or account for. A careful inquiry into their physical condition will reveal that their nervous system has been overtaxed in

some way, or they have suffered from some constitutional trouble which has much impaired the healthy action of the nervous powers In too many of these cases exercise is recommended, and they set about it vigorously in the hope that they will in that way regain their strength, but they soon find that they are more uncomfortable in place of being better. A rigid scrutiny into their habits and manner of life, and also into their physical state, will make known the fact that, back of all these conditions, lies a state of some one or more of the bodily organs which requires special care and treatment, and when that treatment is instituted and proper hygienic measures be insisted on and practised, a marked improvement will be manifest. Observation has long since compelled the conviction that absolute rest in the recumbent position for a portion of each day, and a very moderate regulated degree of exercise are absolutely necessary for restoration in such cases. But with these must be employed such medical treatment as will have the effect of strengthening the nervous system, removing as much as possible any diseased or disordered state, and that amount of healthy nutritive food which the system will, on trial, be found best able to assimilate.

Nothing must be taken for granted, but every organ must be carefully examined to ascertain its exact condition so far as that can possibly be learned, and every irregular or diseased act must be met in the manner best calculated to restore it to its normal action, and among these will be found of most essential service calmness and composure of mind and repose of body.

How best to obtain these will often tax the ingenuity of the physician to the utmost, but he must study all the varying phases most diligently in order to know best how to adapt the means to the end, and he will most generally be rewarded for his efforts by the improvement of the patient, and steady progress towards restoration, and in the esteem and confidence of the friends and by the increased opportunities afforded for the display of his talents in other cases.

While thus urging rest as a general direction, it is necessary that attention be given to secure rest to special organs, from special causes of excitement or exercise. The organ may require relief from over-exertion in the direction of too great labor thrown on it, or from the irritable condition arising from deficient or inappropriate nutrition, and in either case the nervous organism will be so affected as to require active interference in the direction of rest and freedom from the labored performance of its appropriate functions.

Avoid stimulants as much as possible, and feel your way cau-

tiously and gently to the employment of those means which are found on trial to be most successful in relieving the disordered state, and among these will be found those preparations of iron which seem to have such a decided effect on the nervous system. Give the means used a fair trial, and do not change so frequently that no time will be given to ascertain what effect the medicine used may really have produced.

To indicate the exact manner in which the disorded functions may be rectified, would require a special inquiry into a variety of actions and reactions which time will not allow, but which can be most readily determined by a thorough examination into the causes which may have led to such conditions.

There is much less likelihood of erring in the direction of too much rest than of too little, and to take the mean between the extremes, and indicate in each case what will most effectually secure the desired end, will give ample employment to all the powers of the physician who is anxious to remove most completely that most troublesome and distressing of all disorders, an impaired and irregularly acting nervous organization.

ON THE PREPARATORY EDUCATION OF MEDICAL STUDENTS.

By TRAILL GREEN, M.D.,
NORTHAMPTON.

Mr. Chairman and Members of the Medical Society of Pennsylvania:—

It may be asserted without fear of contradiction by any one in the medical profession, or outside of it, that it is proper to require that all who wish to enter it should be prepared by mental culture to study it and thereby be qualified to practise it. This is the belief and practice of men in every department of life. A merchant would not receive a young man into his employment without being assured that he has received sufficient education to qualify him to understand the business and perform the duties that he will be called upon to meet. He would most certainly expect him to be acquainted with arithmetic, and that he is able to read and write, and he will be pleased to find that he has advanced to a higher degree of learning. In every mechanical pursuit in which the mind is to be exercised, and it is more or less in all of them, the master workman will see that the applicant who is to learn the art is prepared to receive instruction.

The editor of the *Veterinary Review* recently said, "We cannot be accused of exaggeration when we venture to assert that scores of young men, very imperfectly educated, scarcely able to read and write their own language, who may have failed in other pursuits, and are without any idea of the requirements of a veterinary surgeon, have entered our schools, and in due time received their diplomas." (*Med. Record*, March 12, 1881, p. 283.)

Every member of this Society knows that this may be said of many young men who enter our medical schools, and if the editor of the *Veterinary Review* is interested in the education of students who are to treat sick horses, cows, sheep, and pigs, what should be our concern relative to those who are hereafter to treat the diseases of men? The Great Physician asked centuries ago, "How

much then is a man better than a sheep?" Matt. xii: 12. How indifferent we are! How little we do to secure the end so much to be desired!—a well qualified class of practitioners of medicine.

The preliminary education of intending medical students which this Society insists upon will call for further consideration, from time to time, until the end designed has been reached. At the meeting held in Altoona last year it was resolved that no county society shall be represented here by delegates unless it has appointed an examining committee as the State Society has directed.

Now it can be seen that this committee may be appointed, but the members of a county society may not report their students, and permit them to carry on their studies as well as they can and enter the medical schools. We must, therefore, amend this rule and require the members of county societies to report the names of intending students to the examining board. This will reach the object proposed by the State Society so far as control of the profession organized in county societies is concerned. But in every county where societies exist there are medical men who are not in these societies; we cannot compel them to act with us. And there are regions entirely beyond our jurisdiction; many counties in which no organization exists. What can we expect of these practitioners? They seem to have no interest in self-improvement, none in the advancement of the profession. How shall we reach the students of these practitioners? Through the schools, certainly, as the simplest and plainest way. Is it asking too much to solicit their help? They are our fellows. They must be interested in the advancement of the profession much more than we are. The practitioner represents the school, he stands as a witness of its work, and honors or brings disgrace upon the school whose diploma he holds. But more than this as it relates to obligation; the faculties are composed of men who hold fellowship with us in our Society, they are associated with us in county societies, and are regarded by us as worthy examples of learning, ability to teach, and practice the profession. Would it not be sad to know that they of all of us should not be loyal to our noble profession, standing as they do where the eyes of all are upon them?

May we not ask, then, that the schools, rather that the profession in the schools, our fellows in societies, our fellows in professional work, will come forward and take up the work in this outside region to which I have referred?

If we have taken a stand which is designed to guard the portals through which young men enter upon professional life, will the schools not assume that part of the work which we cannot do so

well? By so doing they can help us to introduce into their halls those who will honor their teaching in their future professional life.

As the subject stands, at present, unless we have the co-operation of the school the good work cannot be completed. We must see that this requirement of the State Society reaches every one who is looking to the doctorate in our medical schools. Can the teachers not afford to take the right position on the subject of preparatory education? Are they not bound as educators to see that those who apply for instruction in the schools are prepared to profit by their instruction? Is it loyalty to the profession, is it justice to the student to attempt to carry on this work, when it is known that it does not accomplish what it should accomplish for the profession and for the individuals who spend their time and their money for that which is not what it might be, with better preparation? But shall we be told it will not pay or it cannot be done? Harvard has made the experiment.

In commenting on the effects of preliminary examinations, the president of Harvard University says: "It is notorious that medical students have been, as a rule, a rougher class of young men than other professional students of similar age. In this University, until the reformation of the school in 1870–71, the medical students were notoriously inferior in learning, manners, and discipline to the students of other departments; they are now indistinguishable from other students. A corresponding change in the medical profession at large would be effected in twenty years, if all the important medical schools of the country should institute a reasonable examination for admission. (*Boston Medical and Surgical Journal*, Jan. 27, 1881, p. 88.)

On the social standing of physicians and surgeons in the United States recently discussed, President Elliot observes that an American physician may be, and often is, a coarse and uncultivated person, devoid of intellectual interest outside of his calling, and quite unable either to speak or write his mother tongue with accuracy. "What wonder then," he asks, "if the degree of doctor in medicine has not heretofore been universally accepted as a passport to refined society." (*Medical Times and Gazette*, March 19, 1881, p. 338.)

In this connection it is proper to refer to President Elliot's statement made in his address before the young ladies of Smith's College at its commencement in 1879, and which has not been understood, though so well explained by him.[1]

[1] Popular Science Monthly, August, 1880, p. 552.

Dr. Luther Holden, in his recent Hunterian Oration, gives his testimony as to the utility of the studies required by this society as preparatory to the study of medicine; Dr. Holden has occupied the presidential chair in the Royal College of Surgery, and has had an experience of forty years as a teacher of medical students. Can any one deny his statement? Is there a professor in a medical college in this broad land whose experience as a teacher will allow him to contradict Dr. Holden's statement? "In students who have had a public school training I have found a fuller development of the logical faculty, a more cultivated memory, a greater grasp and power of combination. I have found the task of teaching them so much easier, that I have no hesitation in saying that I can teach such pupils more in two months, than others, who have had no like education, in six."

I conversed a short time since with the professor of modern languages in our college. I asked him, "How much time do you give to French in the classical course?" He replied: "One term." "A classical student will learn as much in one term, as students who have not studied the ancient languages will learn in three terms." Precisely the proportion that Dr. Holden gives in the medical course between the attainments of classically educated students and those who have not had the same culture.

Shall we then not only insist upon preliminary examinations, but that these examinations shall include everything which the law of this Society calls for? The weakness of one of our schools in falling back in the first year of a movement for advance in education, I am happy to say has been condemned by all our leading journals, and I doubt not by the best men of the profession throughout the country. The school, it has been said, could not live. Was it necessary that it should live? What is our estimation of the character of an individual who offers such an apology for his crooked conduct? Cannot live and do right! Then far better is it to die. To do that which is pure and true and good is necessary: to live is not by doing that which is false or evil, or which does not promote that which is useful and good. There are heroes in private life, and they receive plaudits of the wise and good.

But we see so many of the defects of the young physician with his diploma in hand, that we dare not deny the necessity of a better culture. Is it not disgraceful that young physicians, graduates of every college of this country, are rejected, if they are applicants, by the army and naval boards? Can the schools say that these young men are qualified for professional work, when fresh from the schools they cannot pass examinations which show them to be

qualified to treat a sailor or a soldier? And if this be true, are they qualified to treat the wives and children and men of civil life? And we ask, are not their deficiencies due to an imperfect education, to their unfitness to study?

Elsewhere in this country the profession is moving for reform on this subject. Shall our State, so long the centre of the best medical education to be had in America, fall behind other States. The Illinois State Health Board, directed to investigate this subject, after enumerating the various essential studies in a medical course, strongly recommends, first, a strict preliminary examination.

The Medical Registration Law in Alabama is said to be wonderfully well enforced. Of ten candidates for diplomas who came before the Examining Boards at Huntsville, nine were rejected. The county societies have also the power to enforce preliminary examinations of all persons who wish to enter upon the study of medicine.

Everywhere the profession is waking up from a state of indifference on the subject before us now. Can we not engage with one mind to move onward with all who are awake to the importance of a higher education for those who will receive the title of Doctor of Medicine? Cannot this society as one man, without the aid of the State, secure this much to be desired result in this State, over which it extends its influence, or shall the State be called in to add its power to enforce what the State Society commands, and so a political enforcement be made? Shall we call the Legislature to give power to the society to enforce a preliminary examination as in Alabama? Are not the members of the profession ready to say to-day, as our English brethren say, "We have clear proof that there is a very strong opinion among medical men as to the necessity of a liberal education for intending medical students." "If the General Council of Medical Education and Registration has not the means, it seems to us absolutely necessary for them to apply to Government for power to enable them to prevent intending medical students from entering their names on the Register of the General Medical Council until they have been proved to possess the required education."

The first regulation of the General Medical Council says "that no person shall be allowed to be registered as a medical student unless he shall have previously passed a preliminary examination in the subjects of general education. (*Medical Times and Gazette*, *April* 2, 1881, p. 380.)

Again I ask, shall the Legislature be called to aid us? It is to be hoped not, but that a voluntary compliance will be made by the societies and medical schools, and the most important subject now

before the medical profession be established, and for it the profession in all coming time will praise those who have accomplished it.

To meet the requirements of the Medical Society of Pennsylvania the Medical Society of Northampton County made the following additions to its by-laws :—

Article V.

OF STUDENTS.

Sec. 1. The following shall be the form of the blanks to be used in the examination of those desirous of becoming students of medicine:

(*a.*) Pledge by the applicant to his preceptor:

[Date.] ———.

Being desirous of studying medicine under the preceptorship of Dr. ——. I do hereby promise that I will pursue my professional studies for a period of at least three years before becoming an applicant for a degree, and that I will not attempt to practise medicine, except under instruction, until my degree is obtained.

[Signed.] ——— ———.

(*b.*) Certificate to be given the applicant by his preceptor:

[Date.] ———.

This certifies that Mr. —— has regularly entered upon the study of medicine in my office (he having promised to pursue his studies for a period of not less than three years from this date), subject to the approval of the Board of Examiners.

[Signed.] ——— ———.

This shall be presented to the Board of Examiners, who shall record upon the certificate the result of their examination as follows:—

[Date.] ———.

The undersigned, members of the Board of Examiners for the Medical Society of Northampton County, report that we have examined Mr. ——, and find him [*] qualified to enter upon the study of medicine.

[Signed.] ——— ———.

* In the blank space before "qualified," insert "un" if the candidate is not fitted, or "fully" should he pass an excellent examination.

The whole certificate shall be countersigned by the Recording Secretary, thus:—

I do hereby certify that this certificate is authentic, and the signatures genuine.

[Signed.] ——— ———,
Recording Secretary.

Sec. 2. The Recording Secretary shall enter into a book provided for the purpose a full list of all applicants, the date of their application, the name of their preceptor, and the result of their examination.

Sec. 3. Before the April meeting of each year the Recording Secretary shall send to every member of this Society a copy of the resolutions of the State Society requiring the preliminary examinations, and the following blank on a postal card, and addressed to the Secretary:—

[Date.] ———.

I have to report that I have had —— [*] —— as students in my office during the year.

[Signed.] ——— ———.

This blank shall be filled out and returned to the Secretary.

Sec. 4. The Secretary shall report the names of all members having students who have not been examined, and of all members who do not return the blank to the Society at the April meeting for such action as they may deem best.

A card of matriculation held by a medical student from a college is not evidence of his fitness to enter a medical school. On the college record he may be conditioned in the very studies which the professors in the medical college deem the most important; or he may be so deficient in all his studies that he has no class standing. His matriculation simply declares that he has promised to obey the laws of the institution, and that his name is enrolled. A medical school that makes up its roll of students of this material will in the end discover that it has not acted wisely.

* If you have had no students insert the words "no one" in the blank space for names.

IN WHAT SHOULD PRELIMINARY MEDICAL EXAMINATIONS CONSIST, AND WHAT STEPS SHOULD BE TAKEN TO MAKE THEM UNIFORM THROUGHOUT THE STATE?

By OSCAR H. ALLIS, M.D.

By preliminary medical examinations is meant an inquiry into the educational training and attainments of candidates for the medical profession.

To discuss the necessity of such a measure is not within the scope of my subject. We as a society have enacted upon the matter, the question now is how make these enactments effective.

No sooner has a county medical society complied with Pollock's resolutions of 1878, than the Board of Examiners ask the question at the head of this article, "In what shall they consist?" "How thorough shall we be?" etc. etc.; therefore, without further delay, I would suggest that a committee be appointed to prepare such a standard of requirements as are set forth in Pollock's resolutions.

These should consist of a course of reading in history, poetry, etc. An examination in the various English branches, botany, geology, grammar, geography, philosophy, mathematics; also an examination in Greek and Latin, specifying what and how much; also a written essay of not less than ten pages of foolscap upon any subject which the applicant must certify is in his own handwriting and his own composition.

The list of requirements when made out should be printed and placed in the hands of every teacher in our schools and academies, and in the hands of every medical practitioner in the State.

The advantages of such a course will be (1) that teachers can prepare young men for entering upon the study of medicine. (2) That the student will pass this examination on the outset and not put it off until he applies for entrance at the medical schools. (3) That physicians can place the list of acquirements in the hands of the applicant and leave him to decide for himself whether he is competent to pass upon it or not. (4) That the examinations will be uniform throughout the State.

I would also suggest that the applicant present a certificate signed by three of his acquaintances that he is of good moral character. Such a list of vouchers is required by our county medical societies, and is but proper in this case.

I would suggest, when a candidate has been successful, that he receive a printed certificate, a certificate that shall be uniform throughout the State—leaving a blank for the candidate's name—for the name of the county—and for the names of the examining board.

I would further suggest that this certificate entitle the holder to entrance upon his medical lectures without further preliminary examinations.

CLINICAL NOTES ON THE EXTIRPATION OF THE OVARIES FOR INSANITY.

By WILLIAM GOODELL, M.D.

By the aid of Listerism abdominal surgery has reached such a pass, that many formidable operations involving the hitherto sacred peritoneal cavity are daily undertaken, with a success and a degree of safety as much assured as in surface surgery. Even exploratory incisions are boldly made merely for diagnostic purposes. Hence, it is that ovariotomy is now one of the most successful of the major operations. Hence, it is that oöphorectomy, or the extirpation of the ovaries—not for any intrinsic disease, but merely to bring on the climacteric—has been placed on a firm basis.

The disorders of menstrual life, for which the ovaries have been successfully removed, are fibroid tumors of the wound, chronic pelvic peritonitis, persistent ovaritis and ovaralgia, ovarian epilepsy, dysmenorrhœa, menorrhagia, and, in short, for all those lesions which are brought about or which are intensified by the periodic congestions of menstruation.

To this list there can be no doubt that some forms of insanity ought to be added. The relation which they bear to menstruation is often a very close one—so close indeed, that the term ovarian insanity would best define it. Thus, all alienists have observed cases of mental disorder in which the periods of exacerbation correspond to those of menstruation. In the interval between the monthly fluxes, the patient may be either wholly sane or at least quite controllable. Esquirol and Morel have gone so far as to assert that derangements of menstruation form the source of origin of one-sixth of the cases of insanity due to physical causes.

Now it seems to me, that, since the verdict of the profession is largely in favor of the removal of the ovaries for many physical derangements dependent upon menstruation, the same remedy should *à fortiori* be tried for those mental derangements which plainly arise or seem to arise from the same source. The objections to such remedy when applied for mental diseases, are, in fact, less

valid than when it is resorted to for physical lesions. For, in the first place, an insane woman is no more a member of the body-politic than a criminal; secondly, her death is always a relief to her dearest friends; thirdly, even in case of her recovery from her mental disease, she is liable to transmit the taint of insanity to her children, and to her children's children for many generations. The removal, therefore, of the ovaries in such a case would then tend to restore a woman to home and to society, and it would at the same time effectually bar her from having an insane offspring. I am, indeed, not sure that, in the progressive future, it will not be deemed a measure of sound policy and of commendable statesmanship to stamp out insanity by castrating all the insane men, and spaying all the insane women. But laying all speculation to one side, I wish now to give my own limited experience in the matter, and to put it on record so that others may profit by it.

Case I.—This was a married lady, thirty-eight years old, whose brain gave way from over-anxiety, and from nursing a sick child, night and day, during the summer of 1875. The first token of insanity was night-terrors, which began to distress her for two or three days before the appearance of her catamenia. These steadily grew worse until September, 1878, when I first saw her. At that time she presented the following symptoms: Several days before the monthly flux—to use the language of her husband, who is a clergyman—"hallucinations on every subject take complete possession of her, and she becomes so violent as to need locking up." These attacks last during the flow, and for a week afterward. During the remaining part of the inter-menstrual period, which lasts from a week to ten days, "she eats and sleeps enormously, like a ploughman," and exhibits mere traces of her hallucinations. She has, without benefit, been an inmate of several insane asylums. Two distinguished alienists, however, held out hopes to her husband, that with the Change of Life reason would return. Deeply impressed with this opinion, and with the conviction from his own observations, that the climacteric could alone cure his wife, and having heard of one of my successful cases of oöphorectomy, he brought his wife to me, for the sole purpose, if I deemed it best, of having an artificial menopause induced.

I found a congested and an hypertrophied womb, measuring three and a half inches. The left ovarian region was exquisitely tender, but the ovaries could not be outlined. These were all the discernable lesions, but, in view of the history of the case and of the opinion of the two experts, who had her for several months under their charge, I decided to remove her ovaries.

This was accordingly done by a vaginal incision on November 23,

1878, and I was aided in the operation by Drs. Joseph Parrish, Charles H. Thomas, B. F. Baer, and Angle. She did not have a single bad symptom following the operation, although she twice jumped out of bed, and had to be forcibly put back and held down. Her pulse and her temperature never rose above the normal. On the eighth day, by dint of a little coaxing, I succeeded in persuading her to let me remove the single stitch that had been put in. After that she could not be kept in bed without undue violence, and I thought it best, as the lesser of the two evils, to let her get up. No harm whatever followed and she recovered from the operation without an untoward symptom.

Although her catamenia were effectually stopped, the menstrual molimina still kept on. They returned with great regularity every month, and were attended with exacerbations of mental disturbance, but in a less degree. I was greatly disappointed at the result, for I had anticipated a cure and felt that I was on the right track. She was now again put into the skilful hands of Dr. Curwen and remained at his institution for over a year. Early in the spring of 1880, after a duration of a little over one year, these efforts at menstruation wholly ceased, and she has since had no mental disturbances whatever. To show her present mental condition I quote the following from a letter of her husband's dated the 4th of last April: "My wife has not had one hour's excitement of the insane order since last May (1880) when she came home. My daughter is away at school, aunty is quite ill, and the entire care of our family of eleven persons falls upon her without producing any injurious excitement." At an interview held in last August he pronounced her "perfectly well."

Case II.—An unmarried lady, of thirty, had for many years a chronic ovaritis, which had terribly crippled her in mind and in body. During the acts of defecation and of menstruation her sufferings were excruciating. At all times she was never free from gusts of ovarian pain, often unbearable. In addition she flooded alarmingly at every monthly period, when all her symptoms became worse. She could not walk a single block, and was virtually bedridden, while her mind hovered on the narrow border-land which separates hysteria from insanity. She could not sustain a connected thread of conversation, and by her insane suspicions and conduct had alienated herself from all her friends and relations. After consulting in vain the very best medical advice this country affords, and pronounced incurable, she put herself into my hands. I thought at first that she might be helped by the use of the curette, and by the rest-cure. But, although she gained flesh and improved up to

a certain point under this treatment, her mind was as crooked as before, and her general health was very far from being restored. So early last year, with the kind help of Drs. D. Hayes Agnew, E. W. Watson, B. F. Baer, and T. V. Crandall, I operated under the spray. I first made a vaginal incision, and was able to reach the ovaries; but they were adherent and could not be brought down. The operation was, therefore, ended by an abdominal incision just long enough to admit two fingers. All the signs of repeated attacks of peri-uterine inflammation were present. The ovaries were adherent to adjacent structures. The broad ligaments were very tense, and adhesion cords ran across the pelvic basin, as tightly drawn as fiddle strings. The ovaries being detached, were cut away, after the ovarian ligament with its corresponding oviduct had been transfixed and tied on either side. The lady recovered promptly from the operation, and has been so vastly benefited in body and mind, as to give promise of her perfect restoration to health. She has become reconciled to her friends, and in fact after a separation of many years now lives with them. Her hallucinations have left her, and although still by no means physically well, she is able to walk a mile and to do as much as many women who do not deem themselves ill enough to consult a physician.

Case III.—While at Altoona at the last meeting of this Association, I was asked by my friend, Dr. W. M. Findley, to see one of his patients, whose insanity seemed to revolve around the ovaries as a storm-centre. She was the daughter of wretchedly poor Irish farmer, who lived some five miles out of town. We drove out to see her on the morning of May 21st, and I found a buxom unmarried girl of about one and twenty with the following history.

For the past six years, or even since puberty, she has been insane at her monthly periods. At first mental aberration was noticed during the flow only, but now the fits of insanity begin a few days beforehand, increase in intensity during the flow, and end a few days afterward. For not quite two weeks of every month, she is comparatively sane, although behaving "very queerly" and wandering more or less about in an aimless manner. As she had not wholly recovered her reason since her last catamenial period, we found her in bed, where she had obstinately kept herself for nearly two weeks. During that time she had not spoken a word, not even asking for food but eating that which was brought to her. To my questions she made no reply, but violently clapped her hands and screamed out at the top of her voice.

With this history of incomplete recovery during the intermenstrual periods, it was with much hesitation that Dr. Findley and I

approached the question of the removal of the ovaries. The drive home, indeed, was spent in discussing the pros and the cons, but we finally decided to resort to the operation, especially as we had the fullest consent of her parents. So in the afternoon we drove out again, being reinforced by Drs. Arney and Miller, of Altoona. The ovaries were removed per vaginam, the sole difficulty experienced being some round scybalous masses in the rectum, from which it was not easy to distinguish the ovaries. Each pedicle was transfixed and tied with fine silk, and the vaginal incision closed by two gut stitches. She recovered without a bad symptom, but the operation did not prove a complete success in so far as her mind was concerned.

Menstruation has not returned, and for eight weeks after the operation she seemed so sane that Dr. Findley felt very sanguine of her ultimate recovery. But she has since relapsed, although not to her former violent condition, as the following letter from the doctor will show:—

"ALTOONA, PA., March 28, 1881.

DEAR DOCTOR: After being apparently so much improved by the operation our patient relapsed; not so bad as before, but still not so well as for some two months immediately succeeding the spaying. I incline to the belief, that had she been removed from her home to some cheerful place, with other surroundings, etc., she would have completely returned to her normal condition. Instead of that, although she has no severe outbursts, she has times of marked agitation, and the reverse of marked depression. There, of course, has never been any appearance of menstrual flow, and no marked increase of flesh. I waited in order to see if the trouble was only temporary or I should have replied before.

Yours truly,
WILLIAM M. FINDLEY."

In reviewing this case I feel that we did right, and I, for my part, under analogous circumstances, would do so again. I am still hopeful that this girl will yet get well, for more than a year elapsed after the extirpation of the ovaries before my first patient became sane. I also believe, with Dr. Findley, that had our patient been put in an insane asylum, or at least been taken away from her wretched surroundings, that her recovery would have been assured. At any rate it is a bit of experience and as such I present it.

CASE IV.—This was not a case of removal of the ovaries, but it is a typical example of the remarkable psychical influences of the ovaries. A. B., single, and about thirty years old, was brought to me by her mother early last summer. She was a splendid specimen

of physical development, and had been in rude health until about a year ago, when very unaccountably her mind began to give way. She had no delusions whatever, but she became very melancholy, and soon developed suicidal mania. For this she had to be watched night and day by the different members of her family, and the health of the father and mother had broken down under the strain. She has never had a disappointment in love; nor has she ever practised self-abuse. I learned that she suffered from dysmenorrhœa, although her catamenia were scant, and that she had more or less backache. Her bowels were costive, and when opened gave her much pain; her sleep was very poor. The womb gave a measurement of three inches, and it was retroverted. Both ovaries were prolapsed; each one seemed harder and rougher than natural, and the left one had a little boss on its surface as large as a grain of corn. This I took to be a small cyst.

I gave her various nervines without any benefit whatever, and at the same time tried to replace the procident organs. After several failures I finally succeeded in so modifying a Hodge pessary as to keep up both the womb and the ovaries. A complete change at once took place. She lost her melancholy and her suicidal mania, her sleep and appetite returned to her, and she became well. Once in a while the left ovary slips down behind the pessary and gets pinched by it. Her old symptoms, then, at once begin to return. At first she used, on these occasions, to come to me to have the ovary replaced, but I taught her the knee-breast posture, and this generally succeeds. Now, I am so sure, and she and her family are so sure, that the ovaries are at the root of all her mental trouble, that, were I not able to keep them up, she would demand their removal, and I would perform the operation with the fullest confidence of its success.

In conclusion, let me make a few remarks about the mode of performing oöphorectomy. Until very recently I have warmly advocated the removal of the ovaries by the vaginal incision, and, indeed, I would now perform the operation in that way, were the ovaries so low down in Douglas's pouch as to be readily felt through the walls of the vagina. But the dangers and difficulties of such an operation, when the ovaries are high up, more than counterbalance its advantages. Twice have I failed to remove them per vaginam, and had to resort to the abdominal incision; and once, from the return of menstruation, I think that some ovarian tissue was left behind. For these reasons, and also because I have found so little inflammatory reaction following the larger operation of ovariotomy, I shall in future perform oöphorectomy by the supra-pubic incision, unless the ovaries are low down.

NOTES ON ALBUMINURIA.

By JAMES TYSON, M.D.

There are two points in connection with albuminuria, the practical importance of which will be readily acknowledged, while I fear from what I can learn they are not altogether appreciated. These are first, the detection of very small amounts of albumen in urine, and second, the correct interpretation of copious albuminurias not due to the presence of pus.

First, as to certain very small albuminurias, I am confident they are frequently overlooked. An albuminuria may be so small as to produce no white line at the junction of the acid and urine, when the pure nitric acid test is applied by what is known as Heller's method—that is when the acid first put into the test tube is overlaid by the urine. Further, it may be so small as to produce—I will not say any diminished transparency by the ordinary heat and acid test, but a transparency so slight as to be readily overlooked, and which, I am confident is often overlooked, while if the tube to which this test has been applied, is set aside for three or four hours, an appreciable sediment will be found at the bottom, which is albumen.

Let me illustrate what I have said by an actual test. I have here a specimen of urine which contains a trace of albumen, in which also casts are present. It is from a case of valvular disease of the heart, and therefore its recognition is of great importance. I place in the bottom of this little minum measure, a small quantity of pure nitric acid; I now overlay the acid carefully by a stratum of urine. It will be observed that there is no white line at the junction of the two, such as ordinarily appears when albumen is present, even in small quantity; I now boil a portion of the same urine, and the faintest diminution of transparency results, a degree of diminished transparency which I am sure is often overlooked, and the urine pronounced free from albumen; and in urine any less transparent than that under test it would be quite impossible for the most

practised eye to detect it.[1] The addition of a few drops of nitric acid in no way affects the transparency of the urine, but slightly darkens it by liberating the coloring matter. Within a variable time, however, which may be an hour or two, or in less time than is required for the test-tube to reach some of those present, the albumen will begin to aggregate in flakes, and still later, collect as an appreciable sediment, as is seen in the second test-tube I pass around, which contains a portion of the same urine boiled and treated with acid a couple of days ago.

The important practical deduction to be drawn from these results is that we should not be satisfied with either the nitric acid test or the heat and acid test, but that both should be combined; and that after using the latter, a decision should not be made immediately, but that the tube should be examined several hours later, to observe whether any sediment has separated. It may be said that such a sediment occurring some time after the application of heat and acid may be something else than albumen. So it may. It may be acid urates, or, in a urine highly charged with urea, nitrate of urea, but both of these are dissolved on application of a moderate degree of heat. So that if a moderate heat be reapplied to such sediment and it still remain, it is albumen.

The second observation I desire to make is that large albuminurias not due to pus, almost, if not quite invariably, mean Bright's disease, and that the existence of the latter may be inferred without further study of the urine by the microscope. By large albuminuria I mean such in which the urine contains one-fourth or more of its bulk of albumen. By such a statement as that made I do not desire to be considered as implying that the microscope is not essential to the proper interpretation of albuminuria; but to correct an impression which I have reason to believe is more or less prevalent, and from which I have known sad results to follow, that unless tube-casts are found in urine that is albuminous, the kidneys cannot be seriously diseased. I can best illustrate my meaning by briefly quoting a case. On September 23, 1880, I was consulted by a physician residing in the vicinity of Philadelphia regarding his daughter, a young girl of 14 years. He told me that in March previous, there was noted a slight swelling of her feet which gradu-

[1] It is scarcely necessary to say that in testing for small degrees of albuminuria, only transparent urines should be dealt with; all causes of opacity should be carefully removed by filtration, and when the latter alone is not sufficient to clarify a urine, as is sometimes the case, it should be warmed with an equal bulk of *liquor potassæ* previous to filtration.

ally increased and extended up her legs and eventually involved the whole body. There was also headache and slight confusion of vision on close application to study. Her urine was early examined and found to be highly albuminous, but no casts were found. The examinations were repeated with the same results many times as to albumen and by the microscope in several instances,—and twice by gentlemen of large experience; but because casts were not found Bright's disease was unsuspected, notwithstanding the œdema of the feet, and the headache, which had recently become very marked. I examined the urine and found copious albuminuria and casts, but the latter so few that I can easily account for their being overlooked. Six days after I first saw her, she fell into the most violent uræmic convulsions, and thirty-six hours later she was dead. An autopsy by myself revealed two typical large white kidneys. She must have been the subject of parenchymatous nephritis from the very beginning, and yet because no casts were discovered in her urine she was declared free from Bright's disease. Very interesting in connection with the absence of casts from the urine was the fact that on minute examination of thin sections, the tubules were found choked with casts, which, I believe, had something to do with the termination of the case by uræmia.

Cases such as this just narrated are not very infrequent.

The practical inference to be made from these cases is not only that we dare not conclude that because the microscope does not reveal tube-casts in a given specimen of albuminuria, Bright's disease is not present, but also that, given a large albuminuria not due to pus, we are pretty safe in saying that it is the result of organic disease of the kidney, even when no casts are discoverable in the urine.

DISEASES OF THE EAR IN LOCOMOTIVE AND OTHER ENGINEERS FIREMEN AND CONDUCTORS, WHICH MAY ENDANGER THE LIVES OF THE TRAVELLING PUBLIC.

By LAURENCE TURNBULL, M.D.,
AURAL SURGEON TO JEFFERSON MEDICAL COLLEGE HOSPITAL.

In May, 1879,[1] I called the attention of the medical profession to the fact that I had found a number of persons who were naturally insensible to sounds above a certain pitch, just as it has been ascertained that there are individuals who cannot distinguish between different colors or certain rays of light of high refractive power. Accidents have occurred to the public from such causes, where persons so defective have had charge of the signals or sounding apparatus, such as are usually employed in case of danger.

Prior to this publication we made a series of experiments on the "Perception of Musical Tones by the Human Ear,"[2] and discovered that many individuals, even professional men who considered their hearing perfect, were found to be defective in one ear, either from disease contracted in childhood or the result of sea or fresh-water bathing or from inflammation passing along the Eustachian tubes to the middle ear, from what is termed an influenza, a coryza, or simple cold in the head.

Cases have also been found where one or even both these defects have cöexisted from birth in the same individual, that is, when a person who was color blind, also had "no ear for music."[3] This defective hearing also discovered in engineers who have charge of stationary or marine engines, and not only in conductors on steam trains but also on the ordinary passenger cars of our city railroads. By the defective hearing, the signal whistle was not heard and collisions have taken place, individuals been injured and valuable lives lost. Following my example, Prof. S. Moos, of Heidelberg, applied my facts by the examination of a great number of stokers and rail-

[1] Boston Med. and Surg. Journal, May, 1879.

[2] Trans. Am. Association for the Advancement of Science. [3] Ibid.

way engineers, and stated (at the International Otological Congress held in Milan, Oct. 1880) that these employés are more subject than other engineers to certain affections of the ear, and to such an extent that the safety of travellers is endangered by it.

Causes.—The following are a few of the causes which I have noticed to produce such attacks of deafness. Intense cold and exposure to cutting winds, snow, and rain. The intensely shrill whistle of the locomotive near the ear, especially when in deep cuts or tunnels, or while running at high speed. The influence of long journeys, as from Edinburgh to London—causing in one case, which came under my personal observation, also inflammation of the brain.

In two instances deafness was produced by a railroad trip from Philadelphia to California, producing vertigo, with roaring in the ear and the noxious influences of the dust and gases with the dry heated atmosphere during the summer months. The ears when examined were found to be filled with hard matters, particles of carbon, silica united with the epithelium and cerumen, causing irritation and inflammation by pressure, etc., on the membrane of the drum. In firemen it is noticed that the sudden change of temperature exerts a powerful influence upon the skin, at one time in "firing up" causing excessive perspiration, and again passing into deep depressions or tunnels which in turn chill the body, causing disease of the nasal and respiratory organs, and this passing into the Eustachian tubes and middle ear causes deafness, which if not promptly treated, becomes permanent. This disease of the ear or ears may have been originally acquired from the ordinary diseases of childhood, as scarlet fever, measles, whooping-cough, or cold in the head; and the exposure of certain employment lights up anew the injury, done already perhaps only in one ear, for it is remarkable how long persons can get along with one deaf ear until some impairment takes place in the other, utterly unfitting them for important duties. When the deafness is caused by such employment on the railroads, where no organic change had taken place in the individual before entering upon his duties, but when the best years of a man's life have been spent in the service of the company, we would not advocate that such an individual should be thrown helpless upon the world; we would have his place changed to one of less importance, and where there would be no risk from his defective hearing. In the numerous positions on or about railroads there is found even employment for deaf men; and even a discharge from active duty on part or full pension should be awarded, and would be but a small outlay in comparison with the risk of life or damages which the company would have to pay. Another form of deafness I have noticed was in a

conductor, namely, when his car was in motion he was able to hear well, but the moment it stopped his hearing became imperfect. Two cases of "Ménière's" disease (a most fatal disease to the hearing as it affects the labyrinth) have been reported by "S. Moos," one of which originated on a railroad journey from Nice to Zurich and Heidelberg, while another had a relapse caused by a long journey by rail.

"Schwartze," a distinguished and careful observer, treated a case of deafness for high tones due to the effect of the whistle of the locomotive. Owing to the profound deafness of a driver of a street railway car, a fire engine with a bell being constantly rung was not heard, and collision took place, and so great was the shock that the forefeet of the engine horses went through the windows of the car, and the only passenger in the car, a lady, was badly injured on the side and limbs, and her nervous system was completely shattered.

A mechanical engineer who had charge of a locomotive and subsequently a marine engine on board of a steam-ship, was so injured by the employment that when he applied to be treated he could with one ear only hear the watch one-eighth of the normal distance, and with the other on close contact.

In a case reported by Moos a locomotive engineer had his hearing so decreased during two years, from travelling through tunnels, that he had, while making up his own, caused a collision with another train, thus doing considerable damage.

Another case was of an engineer who had suffered from deafness of several years' standing; when his train was composed of more than twelve cars he could not hear the signal; he could only hear it four car-lengths.

A complete review of the literature of the subject under discussion can be obtained in a *resumé* of Ludwig Hert's book.[1]

In order to give an unprejudiced opinion Hert travelled repeatedly on the locomotive. His longest uninterrupted journey covered 235 English miles. He notes the following causes which act on engineers and firemen when travelling: 1, the violent concussion; 2, the uninterrupted straining of the eye and ear; 3, the cutting air (less noticeable on the new engines provided with a protecting roof; 4, the continuous erect positions; 5, the frequent change of temperature. The occasional troublesome or noxious influences are: 1, dust; 2, irrespirable and poisonous gases, particularly carbonic oxide.

Hert observed on himself and young firemen an increased fre-

[1] "Die Krankheiten Arbeiter," Abth. I. pp. 126–131, Breslau, 1871; quoted by S. Moos, Arch. of Otology, Dec. 1, p. 322.

quency of pulse and respiration, pain in the knees and calves of the legs, exhaustion, weariness, and excessive thirst and nausea, which, however, soon disappear. Whenever he travelled 35 to 50 miles without a stop, vertigo was perceived associated with violent roaring in the ears, and he felt the urgent need of something to cling to. In addition to these symptoms we have, in the case of engineers and firemen, the mental exertion of the most careful watchfulness, and uninterrupted exertion of the higher organs of sense. Regarding the result of long years of travelling on the engine, Hert says, that taking all in all, an engineer who averages 75 miles daily, in round number 25,000 miles a year—may be sound and robust after twenty years' service as he was in the beginning, provided that he was then healthy, and that he has met with no accidents.

If we examine, says Hert, a large number of engineers who have been long in the service, we find that a majority of them are robust, sunburnt men, with well developed faculties, good digestion, and in a state of health which, in spite of all noxious influences, leaves nothing to be desired,—in a majority, I admit, but the minority, in whom we see the disastrous result of their calling, must not be forgotten.

Conclusions.—I desire that this subject be referred to the committee on Medical Legislation of the State Medical Society, and would offer the following Preamble and Resolutions.

1. It is a well recognized fact, that, owing to the rapid rate of travel on many of our railroads, especially over bridges, through tunnels and crossings, human life is in great peril, and that the number of those killed and injured for life is on a fearful rate of increase.

2. This acquired deafness appears to be more dangerous than color-blindness, because the latter is often a congenital defect which can be defined precisely before the individuals are put on active duty, while the deafness is an acquired disease, slow in its approach, and often unknown to the person affected until an accident, *e. g.*, a cold or an injury, diminishes the hearing more and more on one or both sides, or destroys it completely.

3. The percentage of these affections can only be fixed by extensive statistics and examinations. The fact of its existence is evident, and, even if the percentage were but slight, it is of great importance, for even a single exception is a cause of danger.

4. The ears should be examined very carefully before a certificate for fitness for duty is given ; the examination can and should only be made by a physician who has made a special study of otology, or at

least understands how to examine the ear and to test its functions accurately.

5. Be it Resolved, therefore, that the Legislature of the State of Pennsylvania be petitioned at its next annual session to pass a law requiring all railroad employés to be examined for their acuteness of hearing, by means of the voice, watch, clock, bells, whistles, etc., before taking charge of any fast train on any railroad in the State of Pennsylvania.

After the reading of said paper, which was approved of by this Society, and on motion of Dr. John L. Atlee, of Lancaster, the author of the paper was appointed chairman of a committee of his own selection, to bring this important matter to the attention of the various railroad authorities, and obtain their aid and co-operation to carry into effect the following suggestions:—

To the Presidents, Directors, and Superintendents of the various Railroads in the State of Pennsylvania.

GENTLEMEN: At a meeting of the Medical Society of the State of Pennsylvania held at the city of Lancaster, May, 1881, composed of representative medical men, from nearly every county of the State, who are convened yearly to discuss and devise measures for the conservation and improvement of the health of the community, and with special reference to the prevention and *cure* of diseases, accidents, and injuries to human life, a paper was read in which proof was given that, owing to deafness the result of disease or injury of the ears, railroad accidents have occurred, causing loss of valuable lives and property, for which enormous sums are paid for damages recovered from your companies in cases of such accidents.

(1) Locomotive engineers, firemen, and conductors are liable to affections of the ear with decrease of hearing usually on one side, which may have been originally acquired from disease in their childhood or youth, or which is to be attributed to their employment.

(2) This deafness appears to be more dangerous than color-blindness, because the latter is usually a congenital defect which can be defined precisely before the individuals are placed on active duty, while the deafness is an acquired disease but slow in its approach, and sometimes unknown to the person affected until an accident, *e. g.*, a cold or an injury, diminishes the hearing more and more on one or both sides, or destroys it completely, if it is not properly and promptly treated.

(3) The fact of the existence of cases of such deafness was proven by a report of cases which had occurred in the practice of Prof. S. Moos, a distinguished professor of Heidelberg, and of cases which have come under the notice of the chairman of this committee, in which it was found that both engineers and conductors were so deaf as to completely unfit them for the discharge of their duties.

In the work on "Statistics of Diseases in Railroad Employés," by C. Dwillers, of the railroads of Lyon, he says: His period of observation embraced fifty-four months, with 13,588 employés and 13.92 per cent. cases of disease, and his statement was that the vision and hearing had both become affected.

In the tables of the Lower Silesian R. R. for each year, it was found that an average for the years 1851–8 of 0.08, and for 1859–64 of 0.07 of disease of the ear amongst every 100 engineers and firemen. At the Congress of the German Union of Railroad Directors at Vienna in 1869, and at Frankfort-on-the-Main in 1873, the Congress agreed upon a formula to serve as a basis for statistical collections of the frequence, form, and duration of disease. In this form there is placed a special column for diseases of the ear in engineers and firemen.

The most accurate work which has been published on diseases of railroad employés is that of Dr. Lent, which embraces the statistics of disease on several railroads from 1873 to 1878. During this time there were noted 74,500 cases of disease resulting in 939,659 days incapacity for duty. Locomotive engineers and firemen are most exposed to danger. The most noticeable point in this report, according to Moos, as regards the causation of chronic disease of the ear, is the high percentage (25 per cent.) of diseases of the respiratory organs, including disease of the nose (catarrhal), throat, middle ear, larynx, and lungs. He states there are $\frac{1}{3}$ to $\frac{1}{2}$ per cent. of disease of the ear, while diseases of the eye reach $2\frac{1}{2}$ per cent. But inasmuch as *incapacity* for duty is taken as the basis of these statistics, it is evident in all these cases that the tables only show the *acute* transitory diseases, while they leave unmentioned the cause, the degree, and the frequency, with which the acuteness of hearing in engineers and firemen is permanently affected by their occupation.

All of which is most respectfully submitted to your careful and conscientious consideration by the committee:—

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THE PATHOLOGY OF SHOCK.[1]

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The effects of an injury to any part of the animal economy embrace not only the structural derangement of the tissues involved, but also a change in the general condition of the patient. This change in the general condition is always of the same character in all injuries to every individual, but in each case may differ, and does differ in degree. Although this fact was not observed until the middle of the eighteenth century, the evidence of such derangement had been noted as early as three centuries previous. William Clowes[2] in 1568 gave a very excellent description of the symptoms of shock, attributing the cause of this condition to the presence of some foreign substance in the wound, in other words, a poison. Wiseman[3] and Garengiot,[4] in 1719 and 1723 respectively, departed from former views and ascribed the cause to some active agent in the body,—Wiseman considering it due to the presence of vapors that affected the heart. In 1763 Heister[5] added many important and valuable observations to the former meagre knowledge, in fact many of his observations, although then altogether new, are expressed in the writings of to-day.

Fifty years after Heister announced his observations, the term *shock* was applied to this state of the system by Latta,[6] and to-day this term, with the significance given it by him, is still in use.

[1] Many of the experiments referred to in this paper were embodied in an Inaugural Thesis, which received one-half of the Alumni Prize of the Medical Department of the University of Penna., 1878.

[2] A profitable and Necessary Booke of Observation for all those that are burned with the flame of Gun-powder, also for the curing of Wounds made with Musket and Caliver Shot, etc. etc. 1st ed., London, 1596; 2d ed., London, 1673.

[3] Eight Chirurgical Treatises. By Richard Wiseman. 2 vols. 5th ed., London, 1719.

[4] A Treatise on Chirurgical Operations, from the French of Garengiot. By Mr. St. André. London, 1723.

[5] A General System of Surgery. By Dr. Laurence Heister. Translated by the author. 2d ed. London, MDCCXLV.

[6] A Practical System of Surgery. By James Latta. 3 vols. Edinburgh, 1795.

Shock requires an external exciting cause which will impair the structure of the part subjected to its influence. By certain manifestations, the system will indicate that this impairment of structure has induced a change in the functional activity of all the organs that compose its economy; that this functional activity is depressed. These manifestations are, pallor of the whole surface and of such parts of the mucous membrane as are visible; the external surface is moistened by a cold, clammy perspiration ; the pulse is weak, frequent, and compressible, with a corresponding action of the heart; respiration is performed by weak and frequently repeated acts; there is mental torpor, disinclination to commence physical exertion, with evident loss of muscular force, and low temperature. All the manifestations just detailed are principally evidences of prostration of the functional activity of both the circulatory and nervous systems. These two systems, or sets of apparatuses, which are all important to the maintenance of life, are in some manner affected either directly or indirectly by an injury to some portion of that economy of which they are a part. One of these two systems is primarily affected, or both participate in an equal degree to the production of this condition. Of these two systems we know that neither is independent of the other; that both are dependent, the one —the circulatory—more so than the other, since the functional activity of the circulatory system is completely controlled by certain parts, or centres, of the nervous system. Therefore, of these two systems, which so largely contribute by their activity in sustaining life, we would expect the nervous system to be primarily affected. Further, that each individual organ which is a part of the circulatory system, being controlled by a special nerve centre, must, by its condition, be an index of any functional change in the centre so controlling it. Hence, through such organs as manifest functional derangement the centres can be best observed.

This was first taken advantage of by Brown-Séquard, whose famous theory declared that the symptoms of shock were caused by a more or less persistent contraction of the capillaries through the vaso-motor centre. Closely following this theory, and the outgrowth of accumulated information of the nervous and circulatory systems, came that which we will, as a matter of convenience, term the theory of cardiac paralysis, and latterly the proposition of Drs. Mitchell, Moorehouse, and Keen,[1] of this State, viz.:—vaso-motor paresis.

To return to the manifestations or symptoms of shock: We notice

[1] Reflex Paralysis. By Drs. Mitchell, Moorehouse, and Keen, of Philadelphia. Circular No. 6, Surgeon General's Office, 1864.

that those which indicate derangement of function in the circulatory organs are weak and frequent action of the heart with a correspondingly weak, frequent, and compressible pulse. According to the statement that each individual organ must be an index of that centre which controls it, then a weak and frequent action of the heart we would expect to be, directly, the result of disturbed functional activity of either the cardio-inhibitory apparatus, the accelerator nerves, or the intra-cardiac motor ganglia, and, indirectly, of certain changes in the circulatory vessels; the weak, frequent, and compressible pulse to be, directly, the result of paresis of the vaso-motor centre or nerves, and, indirectly, of that state of the heart just referred to. Now, as certain animals other than man have both nervous and circulatory systems, we would infer that an injury to any one of these animals would induce conditions analogous to those observed in man; and this is the case, as I have demonstrated by a number of experiments. Of these experiments, several series were performed on both cold-blooded and warm-blooded animals. It is not possible in this address to give details of each operation; hence only the general character of each group or series and the results with conclusions will be presented.

First, for the experiments on cold-blooded animals, frogs were selected, and the operation was generally as follows: Some were curarized, others were not, but the same results were obtained in both cases. The animal was firmly fastened on the stage of a microscope, and the tongue or a web was fixed under the glasses for observation. Injuries were produced by crushing a limb with a pair of forceps; in no instance, however, was the limb of the web under observation molested; the tissues, nerves, and bloodvessels of this one being left intact. The power was not over 250 diameters. On frogs this operation was performed with three modifications, hence they are classed accordingly as Series A, B, and C.

The experiments of the first series, Series A, according to the operation just described, were performed merely to determine the effects, if any, of an injury upon the circulation.

The result of each experiment in this series was as follows: With the crushing of a limb there was an almost instantaneous *contraction in calibre* of the capillaries, both arterial and venous, in the field of the microscope. This contraction was quickly succeeded by considerable *dilatation* of the same with increased rapidity of blood current, and as the dilatation became extensive, there was slowing even to stasis. Note in particular that there was first *contraction*, then *dilatation* in calibre with *stasis* of blood current. These results are important, and should be borne in mind as this discussion proceeds;

at present no attempt will be made to explain them on theoretical grounds, but we will proceed to study those of other experiments which were performed to determine the factors in the production of these changes.

The experiments in the second series, Series B, were the same as those in the preceding series, except that the spinal cord was divided just below the origin of the brachial plexus, and two injuries produced, one to a limb connected to the now divided cord below the point of section, and the other to a limb connected to the cord, at a point above the section. After section of the cord there was a very slight transitory dilatation of both venous and arterial capillaries. The crushing of a limb which was connected below section produced in capillaries merely a dilatation of calibre with slowing of blood current; while the crushing of the arms, which were connected to the cord above the point of section, was followed by instant *contraction*, which was quickly succeeded by excessive *dilatation* of capillaries with, first, increased rapidity of blood current, and, second, stagnation of same. In these experiments there is a marked difference in the effects of these two injuries; those made to a limb connected to the cord below the point of section were followed only by dilatation, while those made to the upper extremity were succeeded by contraction with subsequent dilatation.

What can we conclude from the above? Only this: That the impression made by an injury to a limb is conveyed to the cord and along the cord to that centre which controls the tonicity of the bloodvessels, the vaso-motor centre; that this impression to this centre has, first, apparently, a stimulant, and, second, a depressant effect; that this centre is at some point above the brachial plexus, and that there are ganglia scattered throughout the length of the cord which exercise the same function as this centre, only modified in degree, as is evident by the dilatation which succeeded an injury to a limb connected to the cord below the point of section.

Hoping to be able to throw a little light upon the obscurity in which this centre is shrouded, some experiments were performed to determine its locality. With a web under observation, sections of the medulla oblongata were made from above downwards, first through the corpora quadrigemina, each subsequent section being at a distance of one or two lines from the last. The sections in the upper half of the medulla had but little effect, and that transitory, on the calibre of the bloodvessels; they dilated, though not to any considerable degree, and quickly contracted. When these sections were continued into the lower half of the medulla, the vessels dilated to a greater degree than as above noted, and after they had so dilated there was not the

slightest contraction; after each section the dilatation of bloodvessels increased in degree till the *upper* and *middle third* of the *lower half* were divided; further sections failed to produce any appreciable effect on the calibre of the vessels under observation, as did, also, the infliction of injuries. Therefore we can state that the vaso-motor centre is located in (or about) the upper third of the lower half of the medulla; to be more exact, in the *third sixth* measuring from the calamus scriptorius. As in frogs it is impossible to determine with any degree of certainty the susceptibility of the heart, through its nerves, to impressions such as are excited by injuries, we will for the present allow that a certain degree of influence is exerted on the heart, and without discussion pass this question for future consideration.

By the experiments detailed in these three series—A, B, and C,—we can conclude that in these animals, first, the calibre of the bloodvessels is influenced by an injury; and, second, that this change in calibre is effected principally by paresis of the vaso-motor centre.

In cold-blooded animals certain central changes are caused by an injury; now, if, as we would expect, the same changes occur in warm-blooded animals, then, as the result of an injury there would be, first, as the stimulant effect thereof, an increase in the degree of blood pressure, more or less slight and of short duration; second, this to be succeeded by a decided fall. But, before proceeding to consider these experiments, the fact must be remembered while studying results, that the operation necessary to connect the animal with the apparatus will produce a shock, and hence the subsequent injury would less markedly affect the circulation, unless the shock of the operation be modified by complete anæsthesia.

As, in the first series of experiments performed on frogs, so the first series on warm-blooded animals was made to determine whether an injury affected the circulation. Five rabbits were operated on; these five were subjected to six injuries; after these six injuries the rise in the blood pressure varied from *nil* to 16 m.m., the average rise was 6.9 m.m., and the subsequent fall varied from 2 to 16.5 m.m.[1] The average fall was 10.8 m.m. By these results we see that the *a priori* reasoning suggested by the several series of experiments performed on frogs was confirmed; comment would be superfluous. Now, we will consider the question: To which nerve apparatus are we to attribute the causation of the changes observed in the preceding experiments? Are they due to a direct influence

[1] See Tracings of Experiments IX. and XIV.

of the injury upon the accelerator nerves of the heart, or does the same influence paralyze the cardio-inhibitory centre and nerves? to paresis of the vaso-motor centre or nerves, consequent upon which there is a general dilatation of the circulatory vessels? or to a combination of these influences? If they are due to any influence upon the accelerator nerves of the heart, the same can be determined by making sections of both vagi—of the spinal cord in cervical portion, and of the cervical sympathetic nerves—which operation severs all nerve connections between the trunk and cerebral centres, necessitating artificial respiration. This was performed on several animals; in each case there was not the slightest variation in the degree of blood pressure during the progress of the experiment. The pressure was the same as when the connections were first made. As just stated, these several sections of the cord—vagi and sympathetic nerves—severed all connections between the cerebral nerve centres and the trunk, including the heart, and this organ was left dependent on spinal and intra-cardiac nerve ganglia for nerve stimuli; and the absence of any appreciable effect of an injury upon any of these is conclusive that the fall in the degree of blood pressure in the preceding experiments is cerebral and not spinal, although the spinal vaso-motor ganglia are beyond doubt to be considered as a possible factor in the production of any dilatation of the bloodvessels and consequent fall of blood pressure. Still, as we rise in the scale of animal life we find that the development of the cerebral nerve centres occurs at the loss of the spinal centres; hence, while the spinal vaso-motor centres in the frog do not possess that degree of vitality which enabled them, even after the shock consequent on the section, to momentarily withstand the force of the impression, still, as was evident in the subsequent dilatation, they exerted some control over the bloodvessels; but in the warm-blooded animals operated on, we observe no fall in blood pressure after section of the cord, and, therefore, we can but conclude that the vitality of the spinal vaso-motor ganglia in these animals is not as great as in frogs; consequently they contribute less influence as a factor in the fall of blood pressure; also, that in man these same spinal vaso-motor ganglia exert an influence proportionate in degree in the production of similar changes in the bloodvessels.

Is there any influence on the cardio-inhibitory centre or nerves? If the fall in the degree of blood pressure in the first series of experiments on warm-blooded animals was due to the above condition, then, after the section of the inhibitory nerves, either the blood pressure would not be influenced by an injury, or such depression would be much less than that observed.

These nerves were divided in four animals with the production of six injuries; the average rise after each injury was 4.5 m.m., the average fall 10.07 m.m.[1]—an average of 10.8 m.m. when the nerves were intact, against an average of 10.07 m.m. after section of vagi, a difference of .73 m.m.—a difference that is too slight to demand consideration.

From this we conclude that there cannot be much, if any, direct influence on the inhibitory apparatus of the heart. Further discussion of this one question in view of this evidence may be well, considering the fact that there is on record experimental evidence to the contrary. The experiments referred to are in support of that theory which we termed *cardiac paralysis*, and were made and advanced by Mr. Savory, of England, whose views concerning this theory may be accepted as representing all that has been advanced in its support.[2] Mr. Savory states positively that death from shock "is the result of a sudden and violent impression on some portion of the nervous system acting at once through a nerve centre upon the heart and destroying its action." His conclusions are based upon an experiment in which the animal was supposed to have been killed by a shock, and the state of the heart and circulation examined into immediately after death. To induce a shock sufficiently intense to cause death Mr. Savory produced a "sudden destruction of the spinal cord and brain," and, as soon as the animal subjected to the experiment was dead, the chest was opened, and the heart was "found motionless, or with the slighest flickering movement, most apparent in the auricles, and distended with blood. The veins too were even in the same engorged condition." The result of this experiment is apparently conclusive and positive. But a question suggests itself, a doubt concerning the method adopted and pursued by which these results were obtained. Can we attribute the cause of death in such a case to shock, as this term is understood in a surgical sense? As the term is understood, an injury to a part remote from the nerve centres will affect the entire system. But in this experiment there was a mechanical injury direct to the nerve centres, their intimate structures being thereby not only disturbed, but destroyed, being no longer capable of exercising their former functional activity. In the medulla oblongata are located the respiratory, cardiac, and vaso-motor centres; destroy their structures or the connections between each, or prevent the further performance of their functions, respiration ceases, the blood-vessels dilate with cessation of the heart's action, and death occurs

[1] See Tracings of Experiment XVIII.

[2] Holmes's Surgery, 2d ed. Savory on Collapse, vol. i. p. 776.

from apnœa and syncope. This cannot be death from shock, but it is the same as that which comes to a limb after amputation (molecular, in contra-distinction to somatic), because there is no question concerning the truth of the assertion, that without cardiac depression shock is impossible; it does not necessarily follow that this depression is the result of a direct impression made on the cardiac nerve centres by the injury, for the functional activity of this organ is controlled by other influences in addition to the cardiac centre. That the activity of the central organ of circulation is greatly and seriously depressed, and that engorgement of the right side of the heart occurs after a severe injury to an animal, we have seen too often to question; but by experiments performed, which will hereafter be detailed, you will observe that the venous engorgement was not the result of cardiac paralysis. Further, the experiments of Goltz and Brown-Séquard have been referred to by almost every writer on the subject of shock in support of this theory. These experiments, simplified, are as follows: Lay open the abdominal cavity of either a frog or a rabbit or any other animal; strike the viscera; result—stoppage of the heart by reflex inhibition. These experiments were continued further by connecting a rabbit to a kymographion, and laying open the abdominal cavity while the animal was under the effects of ether; then after recovery from the anæsthesia the visceræ were struck with a blow of considerable force, after which it was observed by the instrument that there was at first slowing, then increased frequency in the action of the heart accompanied by a very decided fall of blood pressure. In these experiments, the injury is direct to tissues supplied by filaments of the vagi, and therefore these filaments cannot escape injury, as the impression on the nerves is conveyed direct to vagi centres, and the result is, first, a reflex inhibition of the heart, and second, if the blow be very severe, a paralysis of inhibitory centre with acceleration of the heart's action.

But this evidence does not detract from the value of the results obtained in the experiments detailed, as they form a class of injuries in which certain organs, that largely contribute to that aggregate of processes which is termed life, and hence are designated vital organs, receive a direct injury which prevents the performance of their functions.

To conclude our experimental evidence, galvanization of a sensory nerve will cause a rise of the blood pressure by stimulating the vaso-motor centre. This was done, but in addition, an injury was first produced, and after the subsequent fall had occurred an uninterrupted current was passed through the anti-crural nerve, but

instead of a rise in the blood pressure, no change was apparent, thus conclusively proving that the injury had paralyzed the vaso-motor centre; that there was a paresis, or loss of susceptibility to impressions, or of the power of generating impulses after the reception of an impression, etc., by the vaso-motor centre.

In conclusion, a careful comparison of the results of the experiments on both cold-blooded and warm-blooded animals will show that they are in unison; that that state of the vaso-motor centre or nerves necessary to a persistent contraction as suggested by Brown-Séquard does not exist in shock, and that—

First, the impression produced by an injury is conveyed by afferent nerves to the medulla, and there, apparently paralyzes the vaso-motor in preference to all other centres, and destroys either its susceptibility to impressions, or the power of generating impulses; and the bloodvessels under its control, because of the lack of stimulus necessary to the maintenance of the equilibrium of their calibre, dilate.

Second, the heart is slightly influenced, if at all, through the inhibiting centre or nerves, and then, always secondarily to the vaso-motor centre (except when any branches of the pneumogastric nerves are injured).

Questions of great interest and corresponding intricacy arise in the study of the effects of an injury or shock on the nervous system. We may see a physical injury to any part of the animal organism; observation may instruct us as to the derangement in structure, and the loss of vitality or life in the same: but here positive knowledge terminates, and we must rely upon inference only for the explanation of that which we do not see, and cannot, in the present state of our information of experimentation demonstrate. The mutilation of a part that deranges the functional activity of the tissues involved will, either through their ultimate molecular structure upon the conterminous nerve filaments, or directly on the nerve trunks, produce an impression, indeterminable in its nature, which is conveyed by the intermediate nerve connections to the nerve centres. The peculiarities of the effects of these impressions are striking. We cannot decide whether these impressions are of the same character as those induced by a slight touch, or differ from them only in degree, and, by their great force, overwhelm the centre most susceptible, so that its functions are either impaired or destroyed; or instead there is a transmutation of the neural into other of the natural forces, "that a given amount of nerve or any other force is interchangeable with (in shock we may say, perhaps replaced by) some other force, but the quantities of the forces are always equivalent, and

the second force is capable of being converted again into the first without loss and without addition."[1]

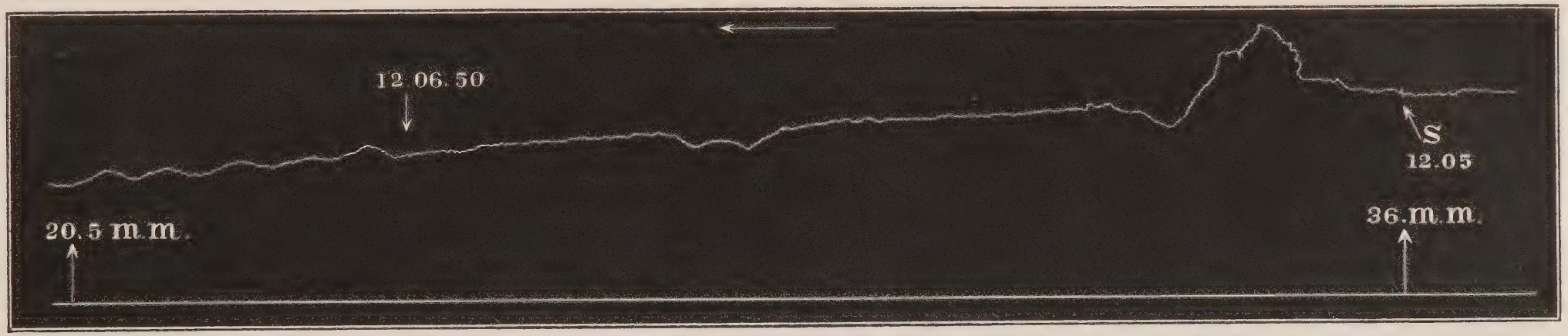
We believe that a state of vaso-motor paresis satisfactorily explains the symptoms which are observed in a patient suffering from a shock. Through the influence of the vaso-motor centre and nerves the muscular fibres in the walls of the arteries and veins, in health, are maintained at a certain degree of tonicity which is requisite to a rapid passage of the blood through their many and devious ways. After impairment of the functional activity of this centre and these nerves, these muscular fibres, not receiving that nervous stimulus necessary to excite their contraction, will fail, more or less, in the performance of their function; their tonicity declines, and the capacity of these vessels is only limited by the amount of connective and elastic tissue in their walls. After a shock, the blood, having lost that *vis a tergo* given by the arteries, flows sluggishly, gravitates merely by its weight to, and gradually accumulates in, the most dependent vessels—the large abdominal veins—until they become distended and engorged. Not only these vessels, but the right side of the heart, is filled to distension, by reason of the stagnation of blood in the vessels communicating with it, so that it can but imperfectly act. The blood having gravitated to these large vessels, the peripheral capillaries are left comparatively empty and devoid of that element which gives to it its color; hence, the absence of color and the pallor which is so general. The coldness of the surface, also, is dependent upon the impairment of the circulation. Moisture on the skin can be accounted for by the greatly relaxed condition of this tissue; the fluid contained within its glandular structure, having no impediment, flows out through the relaxed orifices. The frequent, feeble, and compressible pulse is due not only to that degree of cardiac depression caused by the influence of the shock on the nerves of this organ, but principally, although indirectly, to the relaxed condition of the bloodvessels; the blood flows sluggishly through the veins, the right side of the heart is distended to such an extent that it cannot empty itself at each contraction; hence, the frequency to compensate for the loss of power.

Motor debility, peripheral insensibility, and semi-somnolence are no doubt due in a great part to the anæmic condition of the cerebrum and other nerve centres. As Drs. Mitchell, Moorehouse, and Keen[2] have suggested, "there is no reason why, if shock be competent to destroy vitality in the vaso-motor centre or nerves, it should be incompetent to affect the centres of motion and sensation."

[1] J. Furneaux Jordan, F.R.C.S., on Shock, etc.; Hastings Prize Essay, 1866.
[2] Op. cit.

EXPERIMENT IX.* 9.24.77

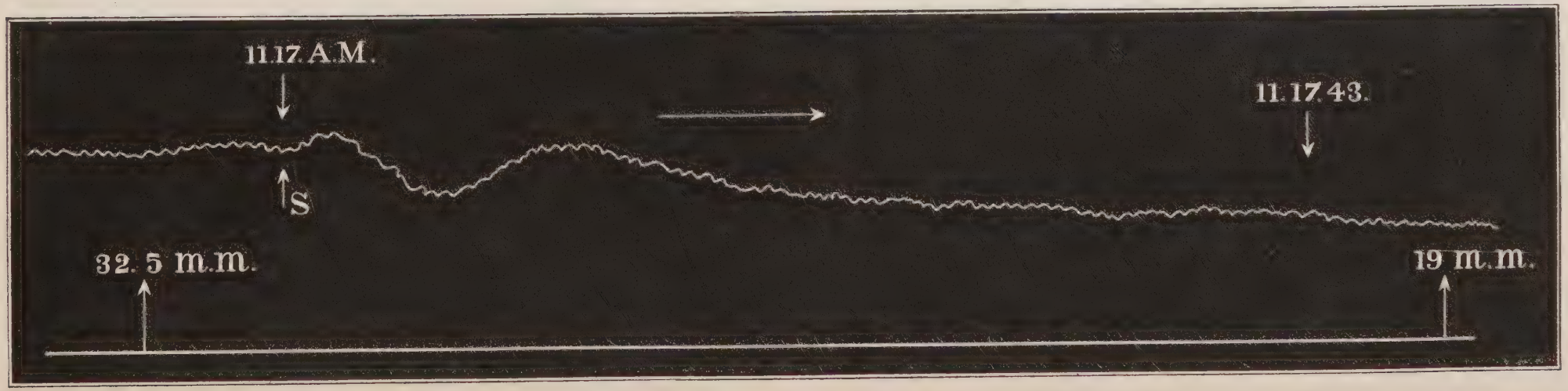
Rabbit, female. Canula in *Left Carotid Artery*.
Right hind leg crushed at S.



* The drum of kymographion in this experiment made one revolution in four minutes. (*Reduced one-fourth.*)

EXPERIMENT XIV.† 10.5.77.

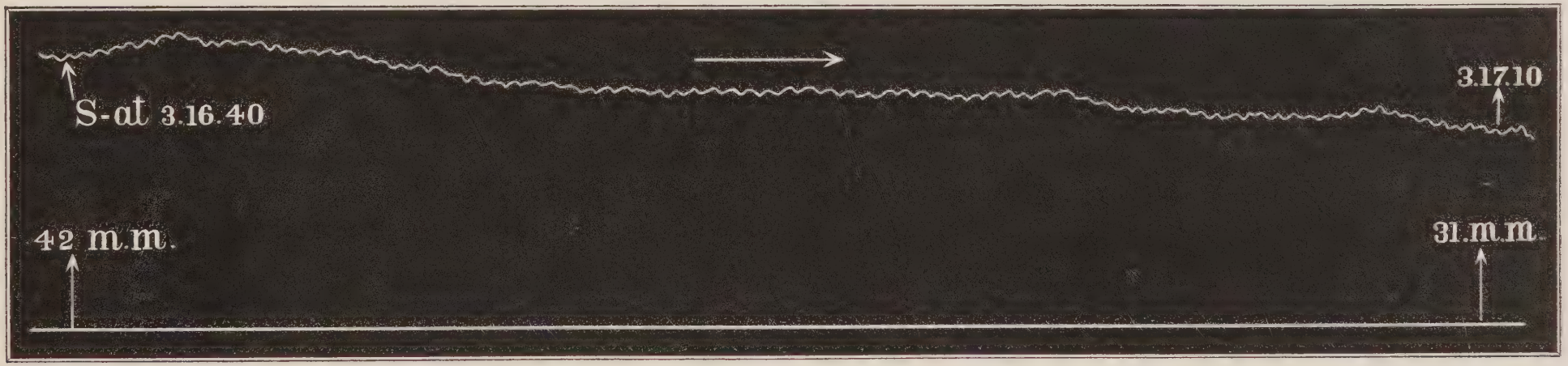
Rabbit, Male. Canula in *Left Carotid Artery*.
Left front knee-joint crushed at S.



† Drum of kymographion revolved at the rate of one revolution in one minute. (*Reduced one-fourth.*)

EXPERIMENT XVIII.* 10.12.77.

Rabbit, female. Canula in *Left Carotid Artery*.
Section of both Pneumogastrics.
Right hind knee-joint crushed at S.



* The drum of kymographion in this experiment made one revolution in one minute. (*Reduced one-fourth.*)

HYGIENE IN ITS RELATION TO THE MEDICAL PROFESSION.

By ISAAC N. SNIVELY, M.D.,
WAYNESBORO'.

However little appreciated by the masses, and however poorly compensated, medical men are pre-eminently the guardians of the public health. Their vocation places them in a position whereby they see more of the evil results of the want of proper sanitary arrangements than other men. Their direct interest in bringing about measures to prevent the spread of disease is not greater than that of others, if so great, and as such measures must rely largely upon registration and statistics of some kind, and as these statistics can only be acquired through the labors of our profession, we have onerous duties imposed upon us. If we have no records of disease and mortality, we have no knowledge as to whether we are advancing or retrograding in sanitation. The plan adopted by our able superintendent of census, General F. A. Walker, in sending blank forms to every physician in the United States to be filled and returned to his office, is a most admirable one, and will be the means of acquiring such a mass of valuable information as was never obtained in this country, and it is to be hoped that every physician who has not already responded will do so without delay. It was with the deepest interest that I listened to a paper read a few days ago before the American Medical Association in Richmond, Va., from information acquired from the census department relative to the greater prevalence of certain diseases in certain sections of the United States, etc. Such statistical information must necessarily only approximate facts so long as individual physicians fail to co-operate by throwing their mite into the general storehouse of knowledge thus being collected.

The adage that "an ounce of prevention is worth a pound of cure" is a *significant truism* when applied to the prevention of disease. Science has demonstrated that the average of human life can be brought much higher than it has ever been by a systematic

regulation of public and private hygiene. General and local governments and municipalities, as well as private families, are unfortunately slow to be educated in sanitary science. Perhaps more than half of human suffering, sickness, and death could be averted by a due regard to the known causes of preventable diseases. Whilst there is so much credit due to the leading physicians of our State for their persistent efforts to have a "State Board of Health and Vital Statistics" established, it is equally discreditable to the intelligence of our legislators in being so slow and indifferent in bringing about such a result. It is, indeed, too often the case that physicians, like ministers, fail to put into practice, in this particular branch of medical science, what they preach. This is particularly the case in many of our rural districts in which the zymotic diseases have, of late years, been so destructive to human life. Is it not too true that the great majority of deaths, especially of the young, throughout this Commonwealth, since the last meeting of this Society, occurred from preventable diseases? To what extent the medical profession of the State is responsible for this I will not pretend to say, but will ask if there has been that vigilance exercised on the part of our rural brethren that there should have been in those localities where diphtheria and scarlatina have made so many voids in the family circle? Have borough authorities, school boards, and private families been admonished to prevent all intercourse between the healthy and the diseased, and has there been a due regard paid to the removal of all known causes of these dreaded diseases?

It is, I believe, pretty generally conceded that contagion is the principal if not the exclusive cause of scarlatina. If I may be permitted to digress a few moments, I will relate some interesting experience I had within the last few years in the treatment and prevention of this disease. From observation I am well satisfied that with ordinary care scarlatina will spread very little. During the summer of 1878 I was called to see a violent case of scarlet fever at the "Clermont House," which had originated in Baltimore. This place was filled with summer boarders, and there were about one hundred children in the house at the time. I had the family removed from the hotel to a private house in the neighborhood. The room in which this case occurred was thoroughly disinfected, and the most scrupulous cleanliness observed around the hotel and about the house to which I removed my patient. Only a small child belonging to the same family became affected, though there were nearly a dozen other children in the house in which I treated my patients. Both recovered. The same season I treated

two cases at "Buena Vista Springs" in the family of a Baltimorean who had this disease in his family in the city, and all his children had been affected but these two. After their recovery a month elapsed and his family physician thought it safe for the children to go to the mountains without affecting others. These two children which had escaped took the disease, and I was unable to procure a place for them elsewhere, and was obliged to treat them at the boarding-house; I placed them in an upper room and kept them isolated from the other guests. They recovered and no new cases occurred, though there were a number of other children in the house. Last summer, when every room was filled in the capacious Clermont House, a nurse was suddenly taken down with scarlatina. Being too ill to be removed, I treated her in the house, observing the same precautionary measures, and sent her home as soon as I could do so with safety, and disinfected her room. The child she nursed took the disease. It was removed to one of the cottages and there treated. No other cases occurred. These cases were all sponged freely, daily, with carbolic soap and warm water, and their bodies kept well anointed with carbolized oil. I have again and again treated scarlatina where, with a proper co-operation of the parents, and by these same precautionary measures, we prevented the spread of the disease to other members of the same family. I think it criminal for physicians and parents to permit the healthy to mingle with the sick in such preventable diseases. Diphtheria, though less contagious, should be treated in the same cautious manner.

In sanitary matters we have to contend with local jealousies, partialities, and prejudices, and some minor evils may pass uncorrected. When local authorities are entrusted with sanitary powers they are generally guided less by professional opinions than by popular sentiment, and it is often difficult to convince them that evils apparently trivial are really of gigantic magnitude.

The greatest impediment in improving the sanitary condition is to overcome the ignorance, prejudice, and negligence of the class of persons for whose benefit our sanitary efforts are principally exerted. In all infectious diseases we, as *guardians of the public health*, should urge speedy interment of the dead, and the avoidance of exposure of dead bodies, either in private houses, churches, or in streets and public carriages. How often the spread of exanthematous fevers among children can be traced to the public school into which children have been permitted to come, if not themselves affected, yet from infected families or houses!

There should be a united effort on the part of our profession to

bring about compulsory vaccination. We should encourage the formation of local boards of health, and take every opportunity to educate the public in sanitary matters, pointing out the various causes of diseases, and how to remove and prevent these causes; show the importance of free ventilation in private houses, schools, public buildings, churches, and in the work-shop, etc.; the evil effects of adulterations of the various articles of food; the importance of sufficient and healthy food—that it is an element of first importance in the prevention of disease—that insufficient and inferior food is a fertile source of disease, that it tends to debility and the development of scrofulous tubercle and the laying of a foundation for future organic disease and morbid life or premature death!

One more thought and I shall conclude these fragmentary and hurriedly prepared remarks. The physician, surgeon, and obstetrician are frequently blamed for carrying disease, and it is with sincere regret we have to acknowledge that this has occasionally occurred with the careless and unthoughtful, and it should be a warning to us all to observe the most scrupulous care to disinfect our hands, when attending contagious and infectious diseases, before performing operations or engaging in the sacred duties of the accoucheur.

EPIDEMIC OF SCARLATINA AT HOLLIDAYSBURG, 1880-81.

By CRAWFORD IRWIN, M.D.,
HOLLIDAYSBURG.

Dr. Mason Good in his Study of Medicine informs us that "scarlet fever, measles, and smallpox seem, indeed, equally to have reached us from the East and to be diseases of comparatively modern origin;" and further on in relation to the diagnostic differences between this disease and measles he says, "and in this manner both diseases continued in every country till within the last half century to be regarded and were treated of with little discrimination, sometimes as a common species, and sometimes as varieties of a common species; and hence, even in our own country we find them united in several of their varieties not only in the writings of Dr. Morton but still more lately in those of Sir William Watson." Perhaps Sydenham in the latter part of the seventeenth century was the first of English physicians to recognize and describe this disease; afterwards it was described by Morton. From the description of these and others for nearly a century, and from the names applied to it, we may infer that in their estimation it was simply a variety of morbilli. It was reserved for Dr. Withering about a century ago to conclusively differentiate the disease under consideration. Says Dr. Tweedie, "to this author is due the merit of having first accurately described scarlet fever as a distinct disease." The writer recollects to have heard the late Dr. John Getty claim for himself the credit of being in advance of every other physician in the interior of the State in distinguishing accurately between this disease and measles, he claiming that up to that period, about 1830, scarlet fever had been regarded as a variety of measles, and passed under the name of French measles.

Whatsoever may be true as to its antiquity or its more recent introduction, it has established for itself a name and a place of no mean importance among the agencies of destruction which periodically visit communities.

The present epidemic, an account of which has been assigned as the duty of the present reporter, has been true to its former history in this, that while adults have not been entirely exempt from its ravages its devastations have been greatly more serious in the nursery or among children under ten years of age. It is not certain that the proportional mortality of adults attacked has been less than children, but the liability to attack among children was greatly in excess of adults.

The town of Hollidaysburg—the county seat of Blair Co., Penna.—and its environs contain about five thousand inhabitants, possibly a fraction less; it is well situated for drainage, and its hygienic surroundings are exceptionally good, as is evidenced by the good average general health which prevails. Socially, it is on a level with the snug and comfortable old county seats in the central portion of the State. Its population is made up of professional men, merchants, mechanics, and laborers. A large proportion of the laboring population is foreign in its origin—Irish, German, and Welsh—the Irish preponderating. This laboring population is generally thrifty, large numbers of them owning their own homes, having good wages and steady work. The town has been exempted from any violent or destructive visitation of this dreaded disease for about a score of years, although frequently seen as a sporadic disease and even attacking a family or two, it has not attained the importance of an epidemic until August, 1880. About this time we were called to see an occasional case, frequently so mild as to call for circumspection in diagnosis; one of these very mild cases was the first seen by the reporter. This one occurred in the family of one of our own practitioners, whose reluctance to pronounce it scarlatina induced him to refer the case to the other neighboring members of the profession, who pronounced it the mildest form of scarlatina simplex. The sequelæ to this mild acute attack left no doubt as to the nature of the earlier phenomena, these sequelæ being tedious convalescence from general anasarca and œdema of lung.

I shall expect to furnish the most faithful picture of this epidemic, by incorporating in this account the separate reports of the individual practitioners, who were brought into daily and frequently into hourly contact with it for a number of months; first, I present the report to our County Society of Dr. G. W. Smith. After detailing the circumstances and reasons for making this the subject of the report he was about to make, he proceeds: "On or about the first of September, 1880, we first noticed a few cases in our town, of a mild form, so mild, indeed, that many of the little patients did not take to bed, and yet the eruption on the surface and morbid

appearance of the throat were distinct; but soon cases of a more serious nature made their appearance. Children were well during the day, as far as noticed, and in the night were seized with nausea, vomiting, and purging; the physician called and found in addition fever, efflorescence of the fauces, and in some cases bleeding of the nose, a little pain in swallowing, headache, and more or less prostration, in a few cases convulsions. The eruption was frequently tardy in making its appearance, which we observed to be a bad omen. The usual symptoms of high fever, loss of appetite, and thirst, were always present, even in the mildest cases; we found in the more severe cases continued vomiting, diarrhœa, or constipation, with delirium, coma, and convulsions, even while the eruption was present. In cases of coma and convulsions at this stage, we found they would pass off in case the brain was not so much overcome as to cause death without reaction. Our observations have been to the effect that, in all cases the kidneys have been eliminating albumen, and in many cases to a depleting degree, and that this albuminuria continued during the whole course of the disease. In the malignant cases, the symptoms of uræmic poison were always present, and that when coma or convulsions did occur with uræmia the patient died, unless cupping over the loins and a free administration of elaterium were immediately resorted to, which in a few cases seemed to divert the impending result. We have noted some phases of this epidemic which have not come under our observation at other times, although they may not be new to some of you. We refer to the universal tendency to disease of the kidneys and the length of time that this tendency persisted. In former epidemics we looked for the kidney troubles to commence at the stage of desquamation, or after the patient had recovered from all the acute symptoms; but far from this has been the course pursued in this. The nephritic complication is found from the very inception of the poison, and we are on constant watch and apprehension to the end of the second or third month; at all intermediate stages have albuminuria and uræmia with their terrible results, œdema of the lungs, temporary blindness, convulsions and coma traceable directly to acute desquamative nephritis, been seen. This has occurred at the very beginning of the disease, the patient taken sick in the evening and dead in the morning; in other cases after three or four days, and in others after two, three, or four weeks; and I now have a case, B. I. M., æt. 12, after nine weeks dying with convulsions and coma from this nephritis, of which he has had but little up to this date; he has been very well for the last two weeks, having recovered fully from the dropsical effusion, eating and sleeping well; slept well on Saturday night,

but on Sunday morning, 23d, was seized with convulsions at breakfast. I found his pulse 54, respiration 14, temperature in axilla 94°, pupils contracted, and he could not be aroused by any means. I ascertained that he had not urinated on going to bed in the evening, nor during the night, nor in the morning; bowels had been evacuated on Saturday. On the catheter being introduced, about half an ounce of urine was drawn off; he was now cupped freely, elaterium was administered, counter-irritants and enema, but he is yet this evening (24th) in the same condition. I have mentioned this case as an unusual sequela; my fellow practitioners have had similar experience."

This report is concluded with the daily observations and treatment of the case of Olive Border, which would be too tedious for insertion here. In the report is also contained a summary of the number of cases treated from the beginning of the epidemic up to 27th January, 1881, with number of fatal cases in the practice of each of the regular physicians in Hollidaysburg, with an estimation of the number treated and fatally in the hands of a Homœopathic physician. These figures are as follows: Dr. W. C. Roller treated 42 cases, of these 4 died; Dr. D. S. Hays treated 57 cases, of whom 3 died; Dr. C. Irwin & Son treated 45, 3 of them fatal; Dr. G. W. Smith, 45 cases, 3 resulting fatally; Dr. I. A. Landis estimated at fifteen, number of fatal ones not known. In Frankstown, two miles east of us, fifteen cases are known to have occurred and five deaths; these were not waited on by any regular physician —summary, 219 cases and 23 deaths.

We next insert the report of Dr. D. S. Hays: "Scarlatina prevailed more extensively in my practice during the last five months than ever before, and in a severer form. In a great many of the cases the outset was sudden and violent. The invasion in nearly all cases was with vomiting and nervous symptoms, during the early stages of the epidemic. In every case without exception—even the mildest—there was more or less angina; I therefore discarded the old division of simple, anginose and malignant, and simply divided them into mild and grave, the latter embracing all in which there was any deviation from an ordinary typical case, the former those in which one set of symptoms did not predominate over another. I have treated in all 57 cases since the beginning of the epidemic, (Aug. 29, 1880) including those on my list at this date. Fourteen of these were grave, viz., Ataxic, malignant and pseudo-membranous angina, a few of such cases involving the pharynx and nares, with faucial gurgling and fetid discharge from the nostrils, and 43 mild or well-marked cases, in which are included those with swelling of

the cervical lymphatic glands, and cellular tissue of the sides of the neck. In 23 of the cases there was tubal nephritis or renal catarrh, resulting in dropsy; in 4 uræmia. One case was followed by articular rheumatism of knee, in five abscess of neck, and in one of both the neck and left wrist joint, dorsal surface, leaving some loss of function of joint. In two convulsions at the onset; three deaths have occurred among my patients, for one of which I do not consider myself in any way responsible, as a so-called Indian doctor was visiting the patient during my attendance without my knowledge. This case was carried off by pseudo-membranous angina; another from the violence of the poison within 24 hours from the attack—convulsed; and the third case from uræmia six weeks after the attack from the exposure. Albumen was present in the urine in every case, tested early in the disease; dropsy occurred in the course of the second and fourth weeks, in one case eight weeks after attack. In one interesting case of uræmic poisoning (in which case my friend Dr. C. Irwin saw the case with me) there were appalling convulsions, almost total suppression of urine for nearly two weeks, great disturbance of the nerve centres, intense pain in left temporal region, and total blindness for more than two weeks, with acute mania, instead of coma. The convulsions in this case were instantly relieved by wet cups over region of kidneys, followed by hot mush poultices to lumbar region, warm baths, and alternately mixtures of potass. acetat. and infusion digitalis, and compound spirits junip., spts. æther. nitr., and cream-tartar and elaterium. Chloral and potass. bromid. were used to quiet mania. In mild cases my treatment was simple—pot. citrat., spts. æther. nitrici, light laxatives if needed, inunction, sponging, cold drinks, bits of ice, and milk diet. In grave cases—inunction, sponging, ice cravat (I used a rubber bag, being more convenient), ammonia carb., potas. chlor., tr. ferri chloridi and quinia, according to the character, whether throat, head —ataxic or malignant. All the cases of dropsy recovered readily, under hot baths, mush poultices to back, and in some cases dry cups, in others wet, to kidneys—pot. acetat., spts. nitr. dulcis—digitalis infusion and potass. bitartras, watermelon-seed tea, etc. My experience in this epidemic has convinced me that there is little virtue in iron or potass. chlorat. I think ammonia superior to ether—milk diet in all cases."

Dr. W. C. Roller makes report as follows: "My first knowledge of the existence of scarlet fever was on the 18th Aug. in the case of my own son aged 7 years, he having the usual inceptive symptoms of malaise, high fever and nausea; but, not having known of the existence of scarlatina, was totally unprepared for its actual develop-

ment in my own family, being possessed of an abhorrence of this dread disease under any circumstance. Hoping my own diagnosis might be erroneous, I called in my friends Drs. Irwin, Smith, and Hays, to see my child, which was pronounced by them, without doubt a case of scarlatina simplex. By them I was recommended to appropriate treatment—this simplest of cases in the acute period, was followed by the gravest of sequelæ, viz., albuminuria and œdema and infiltration of the parenchyma of the lungs, which yielded to diuretics, with Basham's mixture. While in this latter condition, he was seen by my colleagues mentioned, and the treatment approved. From the date mentioned I have seen (until Jan. 18) and prescribed for forty-two cases of scarlatina in its different forms, divided as follows, seven malignant, twelve anginose, the remainder simplex. But unfortunately the sequelæ of some of the mildest cases embraced such complications as albuminuria, œdema of lungs, and abscess of glands of the neck, that caused in two of my cases fatal result, but in each of these cases indiscretion on the part of parents, relative to proper care, caused the development of the sequelæ. There has been a most singular and marked development of croupous nephritis in a great majority of my cases; so uniform and constant has this been, as to be a subject of surprise to several members of the profession, who have passed through severe epidemics in former years.

My treatment was expectant in character in the early stages, being some simple diaphoretic with frequent sponging of the body when there was excess of temperature. In the anginose forms, iron and chlorate of potash alternated with diuretics, and when exhaustion was excessive gave freely of ammonia carbonate and wine. I have made use of sulpho-carbolate of sodium as a prophylactic in some families, and believe it was productive of benefit, preventing the further development in some, and mitigating the character of the disease in others, who were attacked whilst using the remedies.

A detached report of our own cases and treatment would be largely a reiteration of what has already been recited in the foregoing reports of our neighbors."

The above reports bring us up to January 27, 1881: when it is known that the disease continued to prevail with more or less severity during the following three months, and has not entirely disappeared at this writing (May 9), and that the number of cases and the proportional number of deaths is nearly if not quite equal to those reported, it will be acknowledged that the epidemic has been of more than ordinary severity.

A brief history of the progress and results of the disease in one

family is appended. The family consisted of ten persons, the two parents and eight children, ranging in age from fifteen years, to an infant of a few months. The oldest, a boy of fifteen, was first seized with the disease; having been at work in a rolling-mill, he persisted in alleging that a piece of red-hot cinder was pressed out of a mass of iron by the squeezers and had been driven into his throat. Whether this was fancy or fact, he was very soon discovered to be suffering with the anginose form of scarlatina. This case after a slow and tedious convalescence recovered, but before many days the smaller children, one after another, were all taken down except the baby a few months old; it, the mother insists had passed through the disease in a mild form, before either of the others had taken it. Be this as it may, the other six children, ranging in age from thirteen years to three and a half years, were seized with the disease in its malignant form, ushered in by purging and vomiting, mouths and tongues soon covered with sordes, and ataxic nervous symptoms, and in each of them enormous swelling of the glands about the jaws and neck, these resulting in suppurations, necesitating evacuation with the lancet in several places in each case. One had an abscess at the elbow-joint, three of the cases perished from exhaustion. On opening these abscesses in the three fatal cases, at each opening made a large quantity of fetid pus was discharged, and speedily the incision would gape open, when gangrene would attack the edges of the incision; very soon thereafter the little patients would sink. These cases were waited on assiduously by Dr. Robt. C. Irwin, and the large mortality is believed to be partly due to want of ability and the necessary facilities for nursing and feeding, the family being poor and left almost alone to nurse and tend seven sick children for eight weeks; three of the seven cases died.

It will be observed that the epidemic has lasted with us during the whole of an unusually severe and prolonged winter. The disease can hardly be said to have been quite uniform in its severity: occasionally a lull in the storm, to be followed, after a few days of very low thermometer and a snow-storm, with a fresh supply of new cases, very often the earlier ones perishing from the malignant form of the disease.

The treatment has been, as indicated above, supporting and tonic, avoiding anything that had a tendency to reduce the vital forces, during the acute stage. A number of cases were carried off from the poisoned condition of the blood overwhelming the centres of life, before any efficient treatment could be instituted.

This epidemic has been thought to be remarkable on account of the constancy with which the whole course of the disease was ac-

companied with albuminous urine, as well as the almost constant association during its whole course with desquamative nephritis, followed by uræmic intoxication.

The only other thing to which I would call attention is the almost uniform success following the use of elaterium in the cases of uræmia. In my own experience but one case has failed to be relieved by this drug, when used to the extent of bringing on active watery purging, thereby throwing on the bowels vicariously the function of the kidney, until the nephritis has subsided.

PARASITES OF THE HUMAN BODY.

By R. H. MILNER, M.D.,
CHESTER.

Mr. President and Gentlemen:—

The title of my subject, as announced in the programme, viz., "*Parasites of the Human Body*," is much more comprehensive than was intended, as it is not the purpose of this paper to take up and discuss all or any considerable number of the organisms, animal and vegetable, which find a suitable habitat within or upon us.

These remarks are to show enough of the life-history of the more dangerous and troublesome guests harbored in our bodies for a time during their life-cycle, to teach how they may be avoided, or their worst consequences averted.

In view of all the literature accessible to the practitioner of medicine it would seem to be unnecessary to bring this subject before you in this manner, taking up your valuable time from other and more attractive fields, were it not that in this, as in all other branches of medical science having for its practical end the matter of prevention and not cure of existing disorders, it is so very hard to get either the ear of the profession or the co-operation of the laity. Therefore I hope you will bear with me in thus trespassing, bearing in mind that in all reforms affecting either the material or spiritual man "line upon line and precept upon precept" is necessary to even a slight advancement. It is just as necessary now that the plan of human redemption be brought before the world as it was when Paul stood upon Mars Hill and declared to the Athenians the God they ignorantly worshipped.

In treating the subject of Parasitism we should be in fact what our title declares us to be—Doctors in the full and literal meaning of the term—teachers, indeed, to those whose health it is our duty to care for. We should set clearly before them the sources from which these pests come to us, and enough of their life-history to enable them to avoid becoming the hosts of such unwelcome guests.

The subject of the life-history of parasites should be to us a matter

of great interest; and it would be well to encourage all who may have a taste for original work in this by no means fully explored field. It is only necessary to state that one of the most recent authorities (Cobbold) says: "We are not in full possession of the facts of larval development" of that commonest of all the entozoa, the ascaris lumbricoides, and that it is yet a matter of doubt as to how we become infested. Without this knowledge how will it even be possible to always escape infection?

In the study of human parasites we have to consider the human body as a distinct zoological and botanical region, and these organisms as distinct branches of zoology and botany. The whole subject cannot be mastered without going into the subject of parasitism in general; as many, indeed most of the entozoa pass one or more stages of their existence in the bodies of some of the lower animals. In some cases it is the mature animal that visits us, in others it is the larval stage that our guests pass with us. Others again reach their full maturity, propagate abundantly, and leave with us their progeny in some one of the stages of their multiform existence. To the latter class belongs the entozoon most widely known and dreaded; the flesh worm known as trichina spiralis. With regard to this nematode we will have in our advice to our patients to lay down one rule always safe and absolutely certain to insure immunity from trichiniasis. See that all flesh is well cooked before it is eaten, that no uncooked meat is allowed to enter the stomach. The observance of this rule would seem easy enough; and to most of our native population its enunciation is superfluous. Among foreigners the practice of eating uncooked meat, especially salted ham and various kinds of sausage, is quite common. It is not to be wondered at that cases of trichiniasis among our alien population are of not unfrequent occurrence, since the larval condition of this worm is found in eight per cent. of hogs slaughtered in some parts of the country. (Atwood and Belfield, *American Journal of Microscopy*, Jan. 1879.)

These investigators also found that during a period of ten years the percentage of infected hogs had increased from two to eight. These same authorities state, in the article just quoted from, that sulphurous acid had proved entirely effectual in destroying the vitality of the larvæ in the muscles of the animals. This, if true, provided it does not injuriously affect the meat or render it unpalatable, is a valuable discovery; but still it is safer to trust to the requisite temperature, which, according to Cobbold, need not be higher than 170° Fah., to insure safety.

Another point to be looked to is the matter of preventing the

spread of this parasite among the swine themselves; and this is a most important matter and one entirely neglected. No care whatever is taken to prevent the animals from eating any and all kinds of uncooked flesh from dead rats to their own offal from slaughter-houses. From my own personal knowledge it is a practice with butchers to keep hogs for the purpose of eating the offal of slaughtered animals, which is thrown to them warm with the life that has scarcely left it. It is hardly necessary, in view of this fact, to accuse rats (Cobbold) of being the bearers in all cases, but no doubt they often are, as they are so often found to contain the encysted larvæ.

With another entozoon of almost equal importance the honors are easy between us and the hog. In neither, however, is the fully mature parasite found; this further and final development being reserved for the dog. In the latter animal the worm is known as tænia echinococcus. The so-called hydatid disease found in man, in the hog, and in many other animals—for this pest is very impartial—is the larval condition. These two forms or stages of one and the same animal are so very different in appearance that it is quite hard to convince the unprofessional observer that they have any connection. This is, however, just what we must endeavor to do to prevent this pest from becoming as prevalent in America as it is in some parts of the Old World.

It is only necessary for us to cultivate an intimacy between ourselves and the canine portion of creation, as close as that said to exist between the Icelander and his dog, and to neglect the always important matter of cleanliness of person and of food, for our people to become as extensively affected with this loathsome disease as are the inhabitants of that frigid isle; where it is said one in every six is a victim, and one in every seven goes the way of all flesh from this cause. (Von Siebold, quoted by Aitken, *Science and Practice of Medicine*, vol. i.)

When it is fully understood that for the production of this form of parasitism it is necessary for the living ova, either free or contained in the ripe joints of the tænia passed with the dog's excrement, to be swallowed, the preventive measure of cleanliness will at once suggest itself. I leave it to your imagination to picture the internal condition of poor mortals when *album græcum* formed a staple drug for internal administration. It must have been a holiday for trichinæ as well as for the cooks, before the immortal discovery of Bo-bo, that "burnt" pig tastes better than raw; yet there are not wanting advocates of a return to uncooked animal food, both on sanitary and economical grounds, in spite of all the dangers

arising from this barbarous custom. That it may be under some peculiar conditions an important part of the management of certain cases of ill health is not to be denied; but in these cases a knowledge of the danger should lead to careful examination of the flesh to be so eaten. Through our drinking water come to us many of these unwelcome visitors, in the form either of eggs, embryos, or larvæ. Here also an elevated temperature is the remedy which naturally suggest itself; but as water so treated is not so very palatable, thorough filtering will be found quite effectual.

With the present immense immigration to our shores from almost all parts of the world—the new-comers bringing with them their own various and peculiar forms of parasites, together with their long-time habits, often not the most refined—it is more than probable that we shall have in the future more than our share of these internal enemies to fight unless we can so influence these people by our example as to induce them to adopt our more thorough system of cooking, and incite them to that greater degree of cleanliness which is characteristic of our higher degree of culture. Civilization, indeed, has its compensating offset in this, that, if it be true as is sometimes claimed that civilized man by this very civilization is the subject of more forms of disease, it is not true as regards those due to parasitism. It is true, too, that domestic animals, properly cared for, are less liable to parasitic invasion than the same animals in the wild state; and if greater and more intelligent care—which it is our province to advise—were exercised in feeding and housing, they might become practically free from this class of disorders with great gain to humanity both in health and purse.

INDICATIONS CALLING FOR ACTIVE TREATMENT IN TYPHOID FEVER.

By J. L. CRAWFORD, M.D.,
GREENSBURG.

Typhoid fever is an old disease, and one that has been much written upon in all ages as far back as medical literature extends. It is not my purpose in the few minutes allotted to me to enter into an elaborate discussion of this subject in all its phases, as time will not permit, neither do I expect to advance new ideas to those who have familiarized themselves with the medical literature of the subject in the advances made in the past few years, especially as regards the treatment. It is more especially my purpose to call attention to the subject of the treatment of typhoid fever, especially indications calling for active treatment, and just here I must make a distinction or division. First, those cases of mild typhoid fever in which but little treatment is necessary, cases in which no indications present that call for active treatment,—it is in this class of cases that the expectant treatment has its place, and in this class of cases that this treatment has gained its reputation, and has lost the life of many a patient when applied to the treatment of the graver forms, when indications called for more active treatment. We may say, as a general rule, as a guide to treatment, that when the temperature of a case of typhoid fever does not rise above 102.5° during the latter part of the second week and in the third week, but little treatment is necessary; almost all of such cases terminate favorably without any active treatment, and as these cases comprise by far the largest number of cases, it is not to be wondered at, that many physicians are led to believe this expectant treatment is all that is required in any case. Considering the mortuary reports of our cities, and from what we all know in private practice, death claims a large number of victims set down to the disease typhoid fever; I believe that the percentage of mortality from this disease could be greatly lessened both in our cities and country districts were the division I have indicated fully recognized, viz., between the mild cases

requiring only expectant treatment and the graver cases presenting indications for active treatment. The therapeutic means are well settled by an abundance of evidence by which the exigencies of the symptoms may be bridged over in the graver forms, and a favorable issue ensue, in which the expectant treatment would have failed and a fatal issue almost certainly ensued. Without speaking further of the milder forms of this disease or of the treatment effective in such cases, we will pass to the consideration of the graver forms of the disease, in which active treatment is indicated; the antipyretic treatment of typhoid fever ought to be a useless discussion in a body of this kind, since its efficacy is strongly endorsed by the best medical authority of this country, Flint, Loomis, Da Costa, Bartholow, and many others, in addition to the strong statements in its favor by Liebermiester of Germany, in vol. i. Ziemssen's Cyclopædia of Medicine. I cannot speak with authority for the practice in the cities, but I can say, as far as observation extends in the country districts, antipyretic treatment has not gained a strong foothold, and often where attempted to be carried into effect it is so imperfectly done that no effect can be expected, and many, after this faithless trial, conclude there is nothing in it, and return to their old methods and trust to chance, and allow their patients either to die or get well by the "skin of their teeth," when a well-directed plan of antipyretic treatment would have certainly avoided much of the danger in the cases that do recover, and would have saved the lives of many that died. One of the most important indications calling for active treatment is a high bodily temperature. When the temperature rises to 103° or over, we should always consider we have a grave case, and a case calling for active treatment; otherwise, if this temperature is allowed to remain for days continually, serious consequences may result, such as failure of the heart's action, and disturbances of the nerve centres manifested by active delirium. To reduce this high temperature so that these secondary consequences may be avoided is evidently the most important consideration in the treatment, and the established means by which this end is accomplished should in no case be neglected or imperfectly used.

Of the means used the first of importance is cold water used as a bath on account of its almost universal effectiveness, and in the very grave cases, when the temperature runs up to 105° and 106° or more, it is almost our only hope; of its effectiveness in such cases there is abundant evidence. Since the publication by Brand in 1861, in which the systematic use of the cold bath was set forth, with such excellent results, he has been followed by Bartels, Jurgensen, and Liebermiester, bringing the method to the test of clinical ex-

perience with the most favorable results, so that it may be said that this method, when pursued systematically according to the plans laid down in our recent standard works on the practice of medicine, is effective in reducing the body heat, thereby avoiding the consequent dangers and greatly reducing the percentage of mortality. But notwithstanding this has been established by such positive proof, yet it is a fact that the method is not popular in the profession, generally speaking; there are but few in the profession that will disagree with the authority on the subject. They are willing to admit it in theory, but fail to follow it in practice. Death from typhoid fever frequently comes to my knowledge, but the knowledge of a case systematically treated by the cold bath rarely; and one of my leading motives in writing upon this subject is to emphasize this fact, that this method as well as the other resources embraced by drugs, constituting together what is styled the antipyretic treatment, is often totally ignored and oftener still but imperfectly carried out. The difficulties encountered in private practice to properly carry into effect systematic bathing I know to be very great, yet I do not believe the difficulties ought to serve as an excuse, when the treatment is indicated. If no fancy fever cot can be procured, a carpenter in a few hours can make a box that will hold water; and I can say without fear of successful contradiction that the antipyretic effects of cold water are equally as good administered in a rough box with that administered by the most approved fever cot, although it may not be as convenient. In all cases in which the cold-water treatment can be faithfully carried out I believe it to be superior to all other methods of treatment in the grave forms of the disease. Yet, I do not wish to be understood as undervaluing other methods, especially the treatment by large doses of quinine. That this drug has the effect to materially reduce the body heat in this disease, when administered in doses of from twenty-five to fifty grains, I have often had occasion to test, and have not often been disappointed. When resorted to in time and faithfully persevered in, it succeeds so often that the more troublesome method of cold bathing can generally be dispensed with. The treatment by quinine requires the same systematic care as does the cold bath. It should be commenced as early in the disease as the temperature rises to 102.5°, commencing with twenty-five to thirty grains in the evening; if no marked effect in the reduction of the temperature follows by the next morning, the dose should be increased five grains each evening until a marked reduction does occur the following morning; when that is attained, usually the same dose repeated every alternate evening will suffice to carry the case through and bring about a

favorable issue. I have never exceeded fifty grains at a dose, but have given that often with no effect following that led me to regret having given the dose; should that dose fail I have always resorted to the cold bath. The dose should be given at one time; if the stomach cannot retain it, it should be given by the rectum, the effects being generally the same. If given in small doses extending through several hours no antipyretic effect need be expected, although the aggregate quantity may exceed that required to produce a marked effect if given at one dose. Failure of the heart's action also calls for active treatment when it occurs, whether from neglect of proper antipyretic treatment or in spite of our best directed efforts. In this condition stimulants come in place, but in this as in all other treatments there should be no half-way measures. Stimulate for effect regardless of the quantity; the tolerance of stimulants in this condition is often very great; a pint of whiskey or brandy may often be required in twelve hours. If the delirium subside and the pulse improve, it is an indication that stimulants should be persevered in, and regularly administered. Whatever may be the quantity required, it should be steadily maintained until the disease commences to subside, and may then be gradually withdrawn. Systematic nourishment is necessary in all grave cases to make the other treatment effective. Symptomatic treatment for various conditions and complications may be needed in many cases, but it is not the purpose of this paper to refer to this in detail. The indications I would emphasize as calling for active treatment are high temperature, to be treated by cold bathing and large doses of quinine, and depression with weakness of the heart, in which alcoholic stimulation is the treatment.

CHRONIC LARYNGITIS.

By CARL SEILER, M.D.,
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Chronic laryngitis is an affection so variable in its symptomatology, its etiology, and its effect upon the general system, that to do justice to the subject it would be necessary to write a treatise, which would assume the proportions of a volume, and would be therefore altogether too long to be read before an assemblage of physicians, who have convened to exchange ideas and discuss points of interest which may be brought out in the papers read. A paper which is too long to leave time for discussion of its merits or demerits is, in my humble opinion, a mistake, when read at a meeting such as this. I shall therefore content myself with pointing out a few facts which I have had occasion to observe in connection with the diagnosis and treatment of chronic laryngitis, facts which may or may not be new and of value to the members of this society, and I leave it to them to decide the question.

Chronic laryngitis is essentially a disease of civilization, and its prevalence is intimately connected with our mode of living. During the winter season, which in this latitude it is true is very trying, the majority of persons are closely confined to their houses, which are superheated with a dry air surcharged with dust, and when they do venture out into the open air they use extra heavy wraps "to keep out the cold." Thus instead of being hardened against atmospheric changes of temperature they are more liable to be affected by them than others who do not have the comforts of life and have to brave the storms of winter at all hours, but enjoy a singular immunity from chronic throat affections. In a paper read before the Philadelphia Laryngological Society a few weeks ago, I expressed my views in regard to the rationale of catching cold.

A deranged digestion is another factor which predisposes the sufferer to chronic inflammations of the mucous membranes, and especially of the mucous membrane lining the upper air passages. Certain occupations which are either carried on in over-crowded or

close rooms, or which by their nature produce a fine irritating dust, are very apt to cause chronic laryngitis by the long exposure of the mucous membrane to the irritating action of either carbonic acid in the one case, or the dust in the other. Thus I have found that elevator boys, weavers, and shoemakers are very liable to this affection. Misuse and abuse of the voice, both in speaking and in singing, is a frequent cause of chronic laryngitis, and many singers in church choirs, clergymen, lawyers, and others who use their voices much have to thank this cause frequently alone for the inconvenience and suffering which they experience.

Chronic laryngitis but rarely follows an acute inflammation of the larynx, and generally the symptoms show themselves one after the other with increasing severity. The patient first notices an occasional huskiness of the voice, which in time may become aggravated to hoarseness or even to complete aphonia. Then a tickling sensation in the throat is felt which causes a slight clearing of the throat, and then a short hacking cough without any expectoration shows itself in many cases. This cough may and frequently does increase to assume the proportions of paroxysms which end with the expulsion of a small lump of stiff grayish-white phlegm, resembling both in color and consistence boiled starch, to be repeated at a shorter or longer interval. This expectoration may also be tinged with blood, or may even be of a dark-brown color, resembling the rusty sputa of pneumonia. It is most copious in the morning, and has the peculiarity of flying out of the mouth of the patient when he coughs.

Such paroxysms of coughing must necessarily have their effect upon the trachea, bronchi, and the lung tissue itself, as well as upon the mind of the patient, and thus we find vague pains in the chest, a diminution of the elasticity of the lung tissue, and consequently prolonged expiration, loss of appetite as well as flesh. In fact a case of this kind looks to the casual observer, and frequently even to the medical adviser, like one of incipient phthisis pulmonalis, and such cases of chronic laryngitis which have been mistaken for phthisis are by no means rare, as I had occasion to observe during my stay in Florida last winter.

But how shall we diagnose chronic laryngitis? My answer to this question must be, by using the laryngoscope and by interpreting correctly the changes noted in the larynx. I shall endeavor to give you a short description of what is seen in the laryngeal mirror when examining a case afflicted with chronic catarrhal laryngitis, and shall leave out of consideration those lesions in the larynx, which are due to either syphilitic poison or tubercular diathesis.

When we examine the throat in such a case, we usually find the soft palate and the pillars slightly congested, and the mucous membrane what might be called "*doughy.*" The posterior wall of the pharynx appears dry and the follicles of its mucous membrane somewhat enlarged, especially so if the case is one of long standing. In the laryngeal mirror we see the same condition of the mucous membrane of the larynx that we noticed in the fauces, with perhaps a greater amount of congestion, which is recognized by its bright red color. This congestion is usually greatest in that portion of the mucous membrane which covers the arytenoid cartilages. There is also generally a redness of the vocal cords more or less intense, and in cases of long standing, and more especially in singers or public speakers, they seem thickened and heavier than normal. This accounts for the persistent hoarseness which we almost invariably find, in a greater or less degree, in chronic laryngitis. This redness often extends below the larynx proper into the trachea, and when this is the case the viscid mucus is seen to adhere tightly to the walls of the windpipe, and is only with difficulty loosened by coughing.

Except the general doughiness of the mucous membrane, we do not, as a rule, find swellings of portions of the larynx in catarrhal laryngitis, as we see them so frequently in the tubercular or syphilitic inflammations of the throat.

In the inter-arytenoid commissure we see almost always a small collection of starchy mucus, which in some cases is slightly tinged with blood or is of a dark-brown color. After removal of this collection of phlegm a fissure or shallow ulcer is noticed, which no doubt is the cause of the most distressing symptoms of the disease, viz., the soreness and the cough, and in a great measure also aids in producing the hoarseness. We can readily understand why such lesions are usually found in this locality and rarely anywhere else, when we consider that this portion of the mucous membrane is thrown into folds and is stretched out again with every effort at pronation and to a less extent even during ordinary respiration; and is it astonishing, that if such a raw surface is folded up or stretched, or irritated by mucus, it causes distressing cough and soreness? I am fully aware that many authors of medical text-books deny the formation of an ulcer by a purely catarrhal inflammation, and assign to all such lesions in the larynx a specific character. Nevertheless, I must assert that purely catarrhal ulcerations of the mucous membrane of the larynx do exist and are very frequent. In this statement I am borne out by many eminent laryngoscopists, among them by my friend Dr. J. Solis Cohen.

Sometimes the long-continued inflammation of the larynx affects the muscles of the organ, and then we find partial or complete paralysis of one or both vocal cords as a factor in the production of the hoarseness. A careful physical examination of the chest of course must determine whether in any given case pulmonary phthisis is present or not.

It is easy to see what the treatment in such cases should be. It should consist in building up the system, by regulating the diet, exercise in the fresh air, and a moderate exhibition of tonics and perhaps cod-liver oil. If it has been ascertained that the occupation of the patient is detrimental to his health, he should be strongly advised to change it or at least mitigate the deleterious influences as much as possible. Thus I advise all my patients who work in cotton mills or other factories where there is a great deal of dust, to wear a respirator in which a moistened piece of sponge is contained over their mouth and nose; or if they object to this, as is often the case, I tell them to place a small moistened piece of sponge in each nostril while at work. However, constitutional treatment alone, even the removal of the patient to a warmer climate during the cold season, will not effect a cure of the affection, although change of climate is a great aid to the local treatment, and a patient is relieved more quickly in a warm climate than in a cold and changeable one. The disease is local in its character, its lesions existing in the larynx only, and it is not an expression of a systemic disease; therefore, local measures only can ameliorate the symptoms and effect a cure.

This local treatment should consist in removing the congestion and restoring the lost tone in the mucous membrane, so as to heal up the fissure, abrasion, or ulcer, in the inter-arytenoid space, and to restore the lost contractility to the muscles if paralysis of the cords be present.

I find the spraying of the larynx with weak astringent solutions, or the insufflation of astringent powders, such as sulphate of zinc, tannic acid, etc., to produce the desired effect as far as the congestion of the mucous membrane is concerned. The ulceration or abrasion, and it only, must be touched with some substance which will stimulate the surface and at the same time form a covering for it to protect it against the irritating influences of the air and the secretions, and I know of no better substance for this purpose than nitrate of silver in tolerably strong solution (gr. 90–120).

THE TREATMENT OF HYDROCELE AND SEROUS CYSTS IN GENERAL BY THE INJECTION OF CARBOLIC ACID.

By R. J. LEVIS, M.D.,

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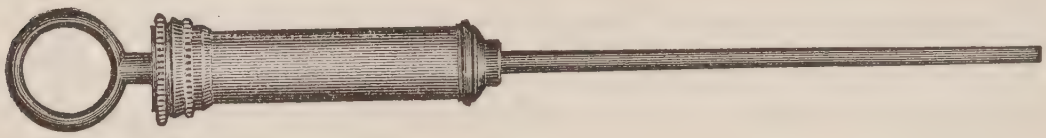
The object of the operative procedures employed for the radical cure of hydrocele of the vaginal tunic of the testis is the obliteration of the serous sac, either by the process of suppuration or the induction of plastic exudation through a lower grade of inflammation. There can be no question in the minds of practical surgeons as to the greater advantages of its accomplishment by the latter plan, and it is only necessary that it shall be rendered more controllable and more certain in its results to insure its exclusive adoption.

Since the method of cure by the suppurative process has been generally abandoned and condemned as too prolonged, painful, and dangerous, a variety of substances have been used for injection into the sac to produce the desired inflammation of its serous lining. It is the object to produce an inflammation which shall neither fall short of nor exceed in its intensity the plastic grade. The substances generally used for this purpose do not act with sufficient certainty in securing this result, and their action is painful and not sufficiently under control.

My experiments on the subject have been directed with the object of determining what substance can best secure the obliteration of the secreting surface and the adhesion of the walls of the cyst with the most certainty and the greatest freedom from suffering and danger. With the impression that a degree of inflammation not transcending that of plastic exudation could be produced by carbolic acid, in November, 1871, at the Pennsylvania Hospital, I injected for the first time one drachm of the deliquesced crystals into the sac of a large hydrocele. Having been previously accustomed to use for this purpose the tincture of iodine, and having witnessed the suffering which follows, I was at once surprised to

find that the new procedure was entirely painless. The patient spoke only of a sense of numbness, and no inconvenience was felt until, on the succeeding day, the desired inflammatory condition became developed. Since that time I have always resorted to this material for the treatment of hydrocele in all my cases in the Pennsylvania Hospital, in the Jefferson College Hospital, and in private surgical practice, and now, after an experience of more than nine years, believe it to be the most satisfactory for the object.

For the purpose crystallized carbolic acid is maintained in a liquefied state by a five or ten per centum addition of either water or glycerine, the quantity of the diluent to be added varying with the quality of the article and with the temperature of the apartment; but it is an object to reduce the crystals to a fluid state with no more dilution than may be necessary. Liquefaction could readily be effected by the application of a moderate amount of heat, but reduction of heat might produce solidification of it in the canula.



After the usual tapping of the sac I inject the liquefied crystals of carbolic acid with a syringe having a nozzle sufficiently slender and long enough to reach entirely through the canula. The illustration represents the syringe, reduced to one-half the proper size. The object of having this special form of instrument is to insure the placing of the injecting material entirely within the cavity of the cyst, without any reflow which would irritate the surface of the skin of the scrotum or of the fingers of the operator, and without the possibility of injecting it into the connective tissue between the skin and the tunica vaginalis. This form of syringe is supplied by the leading surgical instrument makers.

The quantity injected varies in accordance with the size of the tumor, from forty to sixty grains. Thirty grains of undiluted carbolic acid is the smallest amount that I have used, and the largest quantity was a drachm and a half.

As soon as the carbolic acid is lodged within the sac the scrotum is freely manipulated by the fingers of the operator, so as to diffuse it over the lining walls of the hydrocele. A sense of warmth is produced which is quickly followed by a decided numbness, and the patient is at once able to walk about and to attend to his ordinary duties without inconvenience. I have not been in the habit of enforcing rest on the patient until after the lapse of twenty-four

hours or longer, when intra-scrotal inflammation renders quietude agreeable or imperative.

I have never, after this procedure, been able to detect any general toxic effects from the absorption of carbolic acid. Such systemic manifestations as general depression, and the characteristic evidence of the brown discoloration of the urine, I have looked for, with negative results. I believe that the action of strong carbolic acid on surfaces secreting albuminous fluids is to seal them, and, as it were, to so shut them off from the system that absorption cannot readily take place. This sealing of an absorbing surface involves a surgical principle in antiseptic treatment which is applicable in very many instances in which denuded or ulcerating surfaces are exposed to septic infection. I state it as an important surgical resource that, in certain compound fractures and destructively lacerated wounds, where septic exposure is inevitable, the danger from absorption may be averted by producing the occluding influence of strong carbolic acid.

Within my own experience no failure to radically cure hydrocele in the manner I present has to my knowledge occurred. I have never failed to produce with carbolic acid the proper amount of inflammation within the walls of the sac, but have been informed that such failures have occurred in other hands, yet do not know the particulars of the treatment and results in those cases. In no case of hydrocele or other simple serous cyst have I seen inordinate inflammation or suppuration follow injection. In a case of cyst within a disorganized testicle, which was probably sarcomatous, treated with the injection of carbolic acid, high inflammation and suppuration occurred. In three instances of hydrocele of the tunica vaginalis testis, in which the previous injection of the tincture of iodine had failed, carbolic acid made a permanent cure.

I do not propose to determine, in the entire range of cases of serous, synovial, and mucous cysts, those to which this treatment is applicable. All forms of cysts which are usually subjected to any form of operative treatment on the principle of producing plastic adhesion of their walls, such as intra-scrotal cysts and those of the anterior region of the neck, may be deemed amenable to the treatment here indicated. A large class of synovial bursæ, whether they be enlargements of the normal bursal sacs of the body, or adventitious formations, developed by friction or pressure, are proper cases for this treatment. The bursal developments which occur on salient points of the limbs, as those over the patella and on the olecranon process, called respectively housemaid's knee and miner's elbow, can be safely and effectively treated by very free

incision, emptying the contents, and then mopping the cyst walls thoroughly with undiluted carbolic acid, deliquesced simply by heat. A dressing of carbolized oil or ointment is then continued until cicatrization is completed.

I believe that in carbolic acid we have a means, if properly used, of producing almost uniformly the proper plastic inflammation necessary for the radical cure of hydrocele and other serous cysts which are usually deemed amenable to treatment on such principle, and I recommend its use to the profession.

UPON THE DANGER FROM FRACTURES IN CLOSE PROXIMITY TO THE KNEE-JOINT.[1]

By OSCAR H. ALLIS, M.D.,

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Case I.—David H., 50, admitted to county hospital on account of fracture of the femur just above the condyles. There was some swelling and effusion into the knee-joint. The limb was dressed with long splints and extension. Two days later the patient complained of pain in the thigh, and an increase of swelling at the knee and seat of fracture. On the fourth day the pulse was 112; temp. 103°; patient sleepless in spite of opiates; anterior and posterior tibial arteries can both be felt pulsating strongly at the ankle. Has vomited and refused food. Fifth day pulse 112, temp. 101°, symptoms no better. Death on sixth day.

Autopsy.—On cutting into the thigh, blood poured out from the cellular tissue. No large collection of blood at any point, though generally diffused throughout the soft parts. The fracture was at the junction of the lower with the upper three-fourths. The autopsy was hurriedly made and the precise source of the hemorrhage not ascertained. Internal organs healthy. (*Med. Times and Gazette*, 1871, vol. ii. p. 10.)

Case II.—Man, æt. 46, while pulling on his right boot felt something give way just above his knee. (This limb had been paralyzed for over a year, but was nearly restored at the time just referred to.) A surgeon was immediately summoned, who detected a fracture in the lower third of the femur. The limb was dressed in a long splint and left undisturbed for three weeks. He suffered considerable pain immediately after the dressing and during the time the splint was on, when, owing to an increase of the pain, he was sent to the hospital.

Condition on reaching the hospital.— Patient blanched; lips, tongue, eyelids extremely pale; pulse rapid and feeble; right limb enormously swollen throughout. Pain extreme, but greatest at the knee, from which it seemed to shoot. The knee was notably promi-

[1] For an exhaustive paper on this subject see 3d series, Guy's Hosp. Reports. By Poland.

nent, and above the knee a distinct depression was evident. The skin in front and to the inner side of the knee was reddened, and deep fluctuation could be obtained. Both tibial arteries could be felt. For the past week he has perspired profusely, but had no rigors. An exploratory operation was made by Mr. Heath, and finding no pus, a consultation was called, the limb removed, and death followed in three days.

Examination of the limb.—Fracture very oblique and extending from just above the inner condyle to a point five inches above. There was a large amount of laminated blood, the source of which was from the popliteal, the injury being the tearing off of one of the azygos arteries at its attachment to the main trunk. (*Lancet*, 1868, vol. ii. p. 246, University College Hospital.)

Case III.—Benj. M., 18, was thrown from his horse and dragged some distance, injuring knee and shoulder. On examination the latter was found to be slight, while the injury to the knee was regarded as a complete lateral dislocation with four inches of shortening. It was easily reduced, but would not remain in position until after the third reduction, when it stayed in place and was dressed on a long splint.

For a few days the case did well, but then violent inflammatory symptoms set in, and, fearing gangrene, other advice was sought, and the limb amputated in the lower third of the femur. The boy made a good recovery. Six weeks later the amputated limb was exhumed, and the injury found to have been a separation at the lower epiphysis of the femur. A suit for malpractice was accordingly instituted, and damages to the amount of $750 and cost of suit adjudged.

Case IV.—This remarkable case was furnished me by Dr. J. H. Fishburne, of Lock Haven, Pa.

John McV., 48, wood-chopper, injured by the falling of a tree. Sustained a transverse fracture of the femur just above the joint. Treated in the usual manner for twelve weeks, when the case came for the first time under the care of Dr. Fishburne, who found the entire limb below the fracture in a singularly abnormal condition. "The lower portion of the bone and the knee-joint was a crispy nodulated deadened mass; the whole lower extremity was shrivelled, resembling a dried lifeless anatomical specimen." Having satisfied himself that the limb was an incumbrance, and that there was no possibility of reclaiming it, amputation was resorted to and followed by a good recovery.

Dissection of the limb.—The soft parts literally metamorphosed; no soft tissue left save the dried shrivelled parts. The bloodvessels were like so many brittle, or cheese-like strings. The bones were of

a darkened, slightly brownish color, exceedingly brittle, with the medullary tissue all dried up. The arteries at the seat or point of fracture were torn or destroyed. The shrinking away began immediately below the line of fracture, and the flesh fell abruptly away from nearly normal fulness to a skeleton-like shrunken condition.

Case V.—H. B., 48, slipped on an orange-peel and fractured the lower third of the femur. It was dressed upon an American swing splint. Ten days later he was attacked with pneumonia, and thirteen days later (twenty-three from the injury) pus was discovered about the fracture. This was twice aspirated, and, collecting the third time, was laid open and a drainage tube inserted. The wound healed, and the man left his bed about three and a half months after the injury.

About two weeks later he refractured the bone at the same point; a second abscess formed, which was freely opened and followed by a speedy cure. (*Lancet*, 1871, vol. i. p. 153, St. Bartholomew's Hospital.)

Case VI.—James Bennett, R. R. engine driver; was precipitated with his engine down an embankment twenty feet. He was immediately removed to the Chesterfield Hospital, when upon examination a simple comminuted fracture was detected in the lower third of the right thigh—and a long splint applied.

A few hours later the surgeon of the R. R. visited the hospital and approved of the treatment. The limb swelled rapidly, and on the visit of the surgeons of the hospital, Drs. Jones and Black, on the following day, they found the dressing had been removed and the limb resting on a pillow. The swelling was below the knee, while the toe, instep, and ankle were below the normal temperature. The skin presented patches of livid discoloration, particularly about the lower part of the calf, and several bullæ had arisen on the dorsum of the foot and lower part of the leg. These symptoms suggested an injury *below the knee*, but, as in the original examination none was found, the suspicion was laid at rest. The symptoms, however, grew daily worse, and gangrene declared itself on the sixth day. On the seventh day, through the sloughing structures, a fracture of the tibia below the knee was noticed. On the ninth day the limb was amputated, but death followed on the next day.

Examination of the limb.—Fracture of the tibia two inches below the knee-joint, and a fracture of the fibula one inch lower. The posterior tibial artery and the venæ comites were ruptured. (*Lancet*, 1861, vol. ii. p. 227.)

Case VII.—W. J. W., 52, a carpenter, was knocked down, and the wheel of a brick cart passed over his left leg, fracturing both

bones at the same level, a little below the tuberosities of the tibia. A good deal of blood was effused above and below the seat of the injury, and the limb was considerably swollen and bruised.

The limb was put up in splints and evaporating lotions applied. The fragments were not easily kept in position, a tendency to overlap being manifest at every movement of the patient.

For about two weeks and a half everything proceeded favorably, but at this time pain and swelling took place at the seat of fracture and an abscess pointed. From this a large quantity of fetid blood-stained fluid was evacuated. This was followed by considerable sloughing of tissue, and five days later the limb was amputated just above the knee. A good recovery followed. On dissection of the limb, the femoral artery was found plugged with fibrine. (*Lancet*, 1876, vol. ii. p. 638, London Hospital.)

Case VIII.—As J. D., æt. 15, was wheeling a heavy loaded wheel-barrow, it tilted suddenly, and the right handle struck him a severe blow below the right knee, producing a fracture of the upper epiphysis of the tibia simulating an internal lateral dislocation. The fracture was easily reduced, a bandage applied from the toes upward, and lateral splints adjusted.

On completing the dressing the limb was found to be numb throughout its entire length, and much colder than its fellow. The dressings were therefore immediately removed and the limb placed upon cushions. The second day extensive vesications appeared all along the calf reaching to the popliteal space; the great toe and some of the small toes began to look livid. The foot and leg and especially the knee became swollen. On the third day the gangrene was more pronounced, and as the pain was excruciating, consent to amputation was given, which was followed by a good recovery.

Examination of the limb.—The fracture was at the epiphysis of the bones, and the veins were so injured that phlebitis had been set up by pressure upon their coats. The veins were plugged and impervious: the condition of the arteries is not given. (*Medical Times and Gazette*, 1871, vol. ii. p. 74.)

Case IX.—John A., 82, slipped off the edge of a step, fell about two feet, and coming down upon his left leg bent it under him. The joint and surrounding parts swelled rapidly. On examination an oblique fracture in the upper third of the tibia was detected, with some comminution of the fragments. The fibula was also broken a little higher up.

Three days later the leg was blue and much swollen with many blisters upon it, though still warm even to the foot. The synovial cavity of the knee-joint was distended to its utmost capacity. He became delirious, and died on the twelfth day.

At the autopsy blood was found in the joint cavity, and was supposed to have found its way through the superior tibio-fibular articulation, since the fibular fracture communicated with it. Neither fracture communicated with the knee-joint. The cause of the gangrene is not stated. (*Lancet*, 1875, vol. i. p. 857, London Hospital.)

The remaining cases are interesting as showing a result similar to those previously recorded, though not accompanied by fracture.

Case X.—Man, 25, was engaged in raising a heavy truck by means of a crowbar, when the bar slipped and struck him a violent blow on the front of the right thigh. This was followed by sudden and intense pain in the popliteal space, which almost caused him to faint. The pain measurably abated, and he resumed his avocation. Six days later he walked several miles, but a sudden seizure of pain in the knee forced him to obtain conveyance home. There was a gradual increase in the limb for about two weeks longer, when it ceased to swell, and a point of fluctuation was noticed in the ham, and on being opened clotted blood was found. He was admitted, five weeks from the injury, into St. George's Hospital, and, as the limb was cold, pale, and tensely swollen without pulsation below the knee, a large bleb existing on the heel, and a bloody fluid oozing from the popliteal region, amputation was resorted to above the knee, but death from pyæmia followed on the nineteenth day.

Dissection of the limb showed an incomplete rupture of the popliteal artery opposite the joint. The vein was uninjured. (*Med. Times and Gazette*, 1866, vol. i. p. 427.)

Case XI.—W. W., 21, while walking down hill by the side of a loaded wagon, one wheel of which was locked, fell and the lower part of his right thigh was caught by this locked wheel. The wheel did not pass over the limb, but pushed it before it for some distance.

He was taken to the Great Northern Hospital soon after in a state of collapse. The limb (on examination) was found colder than its fellow, swollen above the knee, and pulseless below the knee. The limb soon began to change color, first becoming livid in the foot, and amputation was resorted to forty-nine hours after the accident. The case recovered.

On dissecting the limb, the popliteal was found ruptured just above the anterior tibial branch. (*Lancet*, 1876, vol. ii. p. 426.)

Case XII.—Leah A., 71, fell, doubling the left leg under her; was taken home, but not doing well was sent a week later to King's College Hospital. Here the limb was found enlarged, painful, pulseless, and with a tendency to gangrene, but with no distinct progress. She died four days later.

Examination of limb.—Rupture of the popliteal artery and vein

opposite the joint, with effusion of blood into the popliteal space. (*Med. Times and Gazette*, 1868, vol. ii. p. 123.)

Case XIII.—J. T., 40. While carrying a sack of wheat, he slipped and fell backwards, the sack falling upon his right thigh. He felt something give way just below the knee, and a swelling at once appeared behind the knee and in the upper part of the calf. He was unable to rise without assistance, but could straighten the leg. He was admitted the day of the injury to Guy's Hospital. On his arrival the leg and popliteal region were very hard, tense, and somewhat shiny. No pulsation could be felt below the knee; leg numb and temperature slightly elevated. The limb was dressed in cotton wadding. On the 7th day gangrene was declared, and the limb removed on the eleventh (he would not consent to it earlier). Recovery, though after a long and tedious confinement.

Dissection.—Anterior crucial ligament ruptured; popliteal artery and vein both torn across. (*Med. Times and Gaz.*, 1866, vol. ii. p. 6.)

The cases here represented are only a few typical ones from the multitude that could easily be collected. They have not been sought for, but merely noted in the pursuit of the general study of fractures. I have given them at some length, hoping thereby to arrest the attention of any who have hitherto given the subject no special attention. Not that I have anything new to offer, but rather because I feel satisfied that the danger in this class of injuries is greatly underrated.

All writers upon fractures near the knee-joint have stated that the chief danger is from hemorrhage; but none of them have cared to hazard the assertion that it was physically impossible to have a fracture in close proximity to the joint without having hemorrhage, often dangerous if not fatal.

The principle upon which such a statement rests lies in the disposition of the bloodvessels; and unless this is fully appreciated, a person might be led to make as favorable a prognosis in this class of injuries as in any other; while any one who had been fortunate in a single case thus injured would have little sympathy for others whose results were less favorable.

To illustrate let me refer to a few anatomical points. The femoral artery on emerging from the canal of Hunter takes its course close to and behind the lower end of the femur and upper end of the tibia. The course and branches of this artery must be noted; it is placed behind the bend of the knee for protection and to accommodate itself to the motions of the limb. A glance at any anatomy will give the plan and number of the arteries. There are three pair

making six branches in all, three on each side. These branches pass off at nearly right angles to the main trunk and anastomose with each other on the front of the knee. It is evident that one function of these branches is to hold the main artery in its median course. Below the articulation a branch of considerable size, the anterior tibial, makes its way between the head of the fibula and tuberosity of the tibia to supply the soft structures upon the front of the leg, while the terminal branches are soon lost in the muscular structures of the calf and foot. It is plain from this arrangement, that, while the main artery is guarded against injury from the front, and securely stayed and held in the median course by its numerous branches at this point, yet it is also evident that it must be in great peril when the lower portion of the artery is carried suddenly and forcibly away from the upper portion, as must be the case in all fractures in this locality.

As my main point is, not that hemorrhage, but that *dangerous hemorrhage*, is likely to follow injuries here; not that it may occasionally occur, but that it is *always to be apprehended*, I shall offer no apology for further illustrating it. In Fig. 1, I represent an

Fig. 1.

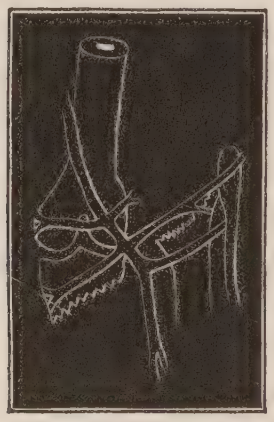
Diagrammatic—showing the arteries put upon the stretch when fracture with overlapping occurs above the joint.

oblique fracture just above the knee. The upper fragment is below, and the lower above the normal attachment of the arteries; and when such a change in the relation of the bone takes place suddenly and forcibly, when the bone, so to speak, suddenly expands to twice or three times its normal diameter, when the distance between two branches is suddenly increased two, three, or four inches, is it not evident that such sudden, violent, forcible change must be at the expense of the vessels that surround the part? The rupture, if in the branches, may be at a distance from the main trunk, and in all such cases the hemorrhage will be trifling; but it will be noticed

(Fig. 1) that not one but several branches are involved, and, if the rupture in a single branch occur close to the parent trunk, then the hemorrhage will be fatal to life or limb.

When the fracture occurs just below the knee, the danger will be similar in nature but more inevitably serious. Here the sudden

Fig. 2.



Diagrammatic—showing the arteries put upon the stretch in fracture with overlapping below the joint.

separation produces tension upon one of the terminal tibial arteries, and the anterior tibial, passing through as it does between the bones to the front of the leg, cannot accommodate itself to the sudden tension, and is therefore the more liable to rupture, and hemorrhage from an artery of this size would be as mischievous as from the popliteal itself.

Although the anterior tibial is in great jeopardy from fractures just below the knee, yet the overlapping of fragments, when the fracture is in the femur, may be just as trying to its integrity. In Fig. 3 I represent an epiphyseal separation possibly similar to the one described in Case III.

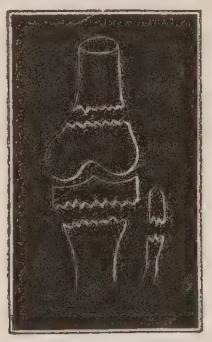
Fig. 3.

Diagrammatic—showing how a fragment of the femur may rupture arteries below the joint.

There are still injuries, whose remarkable fatality every careful observer and reader has noticed, that must be included among those

already described, viz., the epiphyseal disjunctions that are liable to occur at any time prior to mature life. I desire to call special attention to this injury, since authors have described it as one of no serious moment, and to the unwary it may seem not unlike the *separations* that safely occur in other parts of the skeleton. The facts of the case are directly opposed to so favorable a view. Hamilton gives half-a-dozen cases, and the case (III.) already reported shows that loss of limb is often the best compromise that can be made; and he who will take a growing bone, and note how the articular arteries lie parallel with and embrace the bones at these points, will not be at a loss for a solution of so grave a result. (See also Fig. 3.)

Fig. 4.



In the foregoing remarks I have taken but a few of the many injuries that may occur here. To appreciate the full extent of the danger one must picture the veins as numerous as the arteries, and to these add the nerves, all in the narrow compass of the popliteal space, and then subject them to the violence, tension, and laceration that accompany injuries that break the bone, breaking it not smoothly across but always roughly, often with sharp-cutting edges; sometimes cutting both artery and vein across; sometimes piercing one with a sharp fragment, or tearing or bruising them so as to render them no longer capable of acting as blood channels. Such possibilities, such strong probabilities are well worthy the most serious contemplation, for upon the full appreciation of these circumstances hangs the destiny of all thus injured.

Treatment.—No positive rules can be laid down. Everything will depend upon the degree, the character, and the gravity of the injury. In all the cases to which I have referred it will be borne in mind that the skin was unbroken, and the fracture the so-called simple variety. It is plain then that no diagnosis that will embrace the details of the injury, the precise lesions of arteries, veins, and nerves, can be made, and yet the life of the patient will depend upon a wise and intelligent course.

As soon as the patient has recovered from the shock the limb

should be examined under an anæsthetic. No judicious surgeon would add to the shock by instituting a careful, deliberate examination while the patient is still suffering from the depression of the injury. At the proper time, usually within twelve hours, this should be done, *i. e.*, the *examination under an anæsthetic.* I would make this a positive condition, nor would I consent to take charge of a case unless this privilege was conceded. Before the anæsthetic is given, the patient if of suitable age, and the family if not, should consent to the conclusion that may be arrived at by the examination. Such an arrangement will be to the advantage of all concerned.

In making the examination all unnecessary rudeness should, for obvious reasons, be especially guarded against; yet, the examination should thoroughly map out the line of fracture. The mistake of calling an epiphyseal separation a dislocation has been made, and a fracture of the tibia two inches below the knee has been overlooked when it coexisted with a fracture above the knee. No reliable diagnostic signs can be laid down; they will all vary with the injury and the interval between it and the examination. For this reason the anæsthetic should never be omitted. Crepitus will always be present with fracture. If the fracture is just above the joint it may simulate a dislocation, and if there is much swelling, the contour of the whole region will be changed. Let the swelling be ever so great the condyles of the femur can be felt in the semiflexed limb; and if the point of crepitus is above them a fracture must be present. Having ascertained the injury to the bones, the attention should be directed to the circulation; this embraces (1) the arteries and (2) the veins. If the popliteal artery has been torn across, it is probable there will be no pulsation in the vessels below the knee. The popliteal may be uninjured, and the amount of blood effused within the popliteal space may so compress the artery as to render pulsation below too feeble for detection. It must thus be evident at the outset that nothing *absolutely positive* can be said of its condition. Some added information may be obtained by applying a bandage tightly to the feet, so as to drive all the blood out of them. After a few moments remove both bandages simultaneously. If the feet redden with equal promptitude a point in favor of the circulation has been established, while if retarded in the injured limb it may be from lesion or compression of the popliteal artery, or lesion or compression of the popliteal vein. The superficial veins of the lower extremity, and especially below the knee, are the main channels for the return current. If an occlusion in the popliteal vein occur below the knee-joint, the circulation will suffer no material loss, but if it become occluded above it the entire reflow must be

through the internal saphenous, and when this the only avenue of escape is blocked by excessive swelling, the early onset of gangrene is inevitable.

In estimating the gravity of the injury I should *cæteris paribus* deem a fracture just below the knee of graver import than one similarly situated above it. Again, if the original injury had been accomplished through great violence, as by a fall from a great height, or by being thrown from a rapidly moving carriage, so that the vulnerating force had not been expended in breaking the bone, but passed beyond to the soft parts, in all such injuries the prognosis must be far more unfavorable than when the injury was of a less violent order, even though the fracture in the bone be equally extensive. Finally, if the swelling has been rapid and the temperature below the knee be below the standard, the indications are that the injury is of a different and more critical nature than when the swelling comes on slowly or after the lapse of days.

It is highly probable that in the majority of such injuries the patient will not consent to the prompt removal of the limb, nor would the surgeon like to assume so great responsibility. Should conservative measures prevail—a term never used when the amputation of a limb saves a life—the dressing is of the utmost importance. A fracture-box on the principle of the double inclined plane will serve as a retentive apparatus for a pillow upon which the limb may securely rest and receive without further disturbance the medicated applications that may be indicated. In the absence of such a fracture-box I would strongly urge (but only as a temporary expedient) the simple use of pillows, for the limb may be cold and livid before another day, and if splints and bandages have been applied, there are not a few medical men who will assert with the utmost confidence that it was a case of tight bandaging. In the fracture-box the semiflexed position is most favorable to fracture just above or below the knee, and as the entire box can be suspended, there is much more to commend it than at first appears.

If swelling becomes excessive, the idea of punctures and free incisions might suggest themselves, but the probability is they would do no possible good. If there is good reason to think that the tension of the skin and underlying fasciæ should be relieved, then one continuous incision the entire length of the swollen mass down to or even through the deep fascia will relieve it, and nothing else will. If the swelling be attended with grave constitutional symptoms, then the question of immediate amputation assumes great magnitude. To delay for the line of demarcation should symptoms of gangrene arise, would be fatal to the case. Should symptoms of

septicæmia declare themselves, delay will only diminish the chance of recovery.

Not every form of swelling and pain should call for such extreme measures. The swelling may terminate in abscess and recovery follow, still what I urge is that if the injury is near the joint, this fact alone calls for unusual vigilance on the part of the medical attendant, who should be on the alert for every untoward symptom, give it its true value, and be prepared for extremest measures at a moment's warning.

On removing the limb, carefully examine and record the injury in detail; the character and position of the injury to the bone; the blood poured out; the injury to vessels and nerve; and injury to the tissues. As a further precaution, it would not be unwise to preserve the part removed or the injured specimens, as no one can foresee the amount of litigation that is in store for the surgeon.

Before leaving the general subject, I have a word to offer that has been suggested by three cases of injury in this region, two of which found their way into the courts, and the third was only saved therefrom by the prompt and decided action of a distinguished hospital surgeon. In two of the cases heavy damages were awarded, in one case (III.) they were wholly unjust, for though it was treated by an eclectic, there is no reason to believe that the result would have been more favorable in the hands of the most skilful. In all three the cases passed from the care of the original medical attendants into that of other medical men. In the first, suit was *threatened* because the limb was not promptly removed. In the second, the main charge was that an epiphysial disjunction had been mistaken for a dislocation. There is no evidence that the peculiar danger of this class of injuries was dwelt upon, but the mere fact that an error in diagnosis, not in treatment, had been made rendered him liable, though the treatment adopted would have been judicious had he known the precise injury. In the third case there was good reason to think from the character of the injury that amputation should have been resorted to at once. The fact that one is liable to be dismissed from a severe case at any time, should, especially in such an injury as this, prompt him to associate with him one who is both competent and willing to face the consequences either medical or judicial.

In conclusion, I would say—

1. Regard all fractures in the vicinity of the knee-joint as belonging to a class of special danger.

2. Examine all such fractures under an anæsthetic.

3. Amputate promptly if there is reason to believe the artery or vein is torn.

4. Make no hasty or favorable prognosis.

5. If an attempt is made to save the limb, place it in an easy, unconstrained but secure position.

6. Visit the patient frequently, and record the change from day to day.

7. If high constitutional symptoms arise, if gangrene or septicæmia threaten, delay will add nothing to the chances of recovery.

8. If the limb is removed, make a careful dissection of it in the presence of competent physicians, and record the result.

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DEFORMITIES FROM FRACTURE AT THE ELBOW-JOINT.

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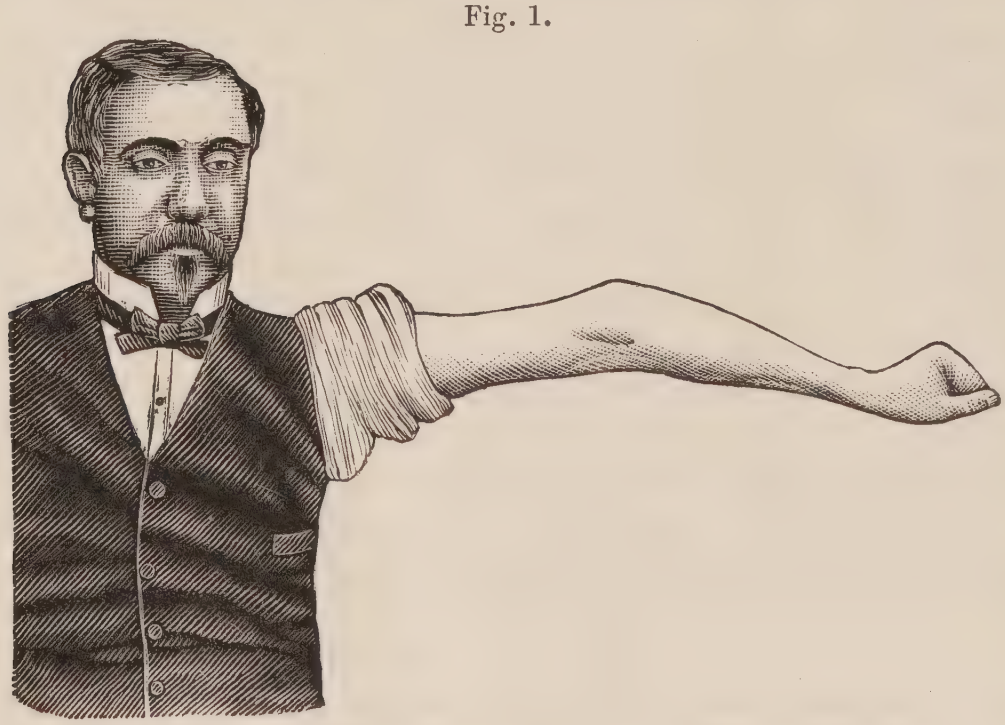
I do not hope in a single article to point out all the deformities from fracture at this region, but shall confine my remarks to malposition from fracture occurring at the lower end of the humerus. The deformities following this class of injuries have a wonderful similiarity, and lead one when comparing a number of them to inquire into its mechanism; for whether the accident occur in one section of the country or another, in the hands of a skilful surgeon or in those of the general practitioner, still the result is often the same and deformity similar. The malposition is well represented in Fig. 1, and may be very appropriately styled the *gunstock* deformity.

Fig. 1.



Deformity after fracture at the lower end of the humerus. From a photograph.

This deformity is wholly confined to the lower end of the humerus, and does not usually affect the relation of the radius and ulna in the least. If we glance at the figure again, a decided prominence of the

external condyle will be seen, and instead of the entire limb having in general a straight appearance, there will be noticed an obtuse angle at the junction of the bones of the arm and forearm. If now we examine a number of cases that have been cured with this deformity, the inner condyle will be found from half to three-fourths of an inch higher than normal; while if the injury was to the external condyle, that fragment will be dragged down. So that in either case the condyles will no longer be on the same level as they may be said to be in the normal arm.[1] This condition of affairs I have noticed repeatedly, viz., the inner condyle elevated or the outer depressed; and the question naturally arises, how is this defect brought about?

Fig. 2.

Fig. 3.

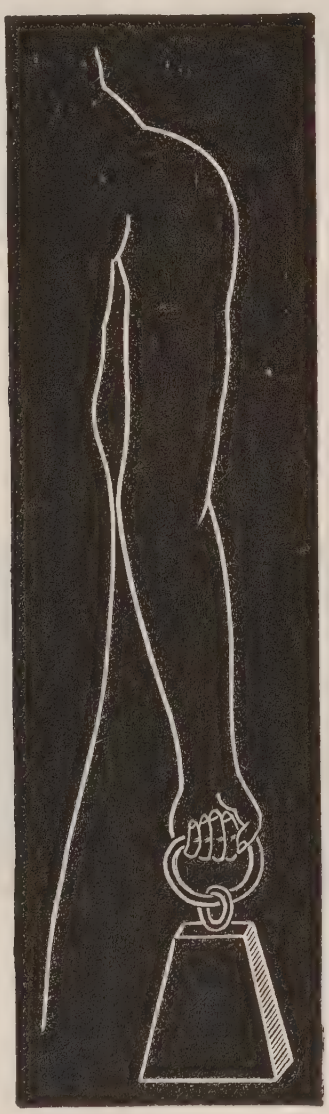


Fig. 2.—Normal angle of bones of the forearm with humerus.

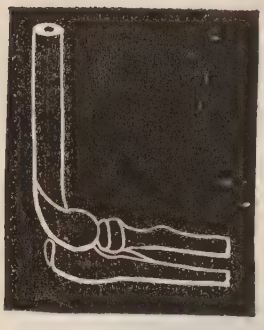
Fig. 3.—Relations of outward angle of forearm with arm to the carrying function.

Let us glance first at the lower end of the normal humerus. Here (Fig. 2) the lower articulating surface is not at right angles with

[1] By this I mean that the epitrochlea is about on a level with the epicondyle.

the shaft of the humerus (see both arrows), and if the eye is glanced along the bones lengthwise it will be seen that the bones of the forearm make with the humerus an obtuse angle on the radial side. This is a design in nature, and serves the laboring man a good turn; for, when he would carry a weight in the normal condition, the elbow rests upon the prominence of the ilium, and thus enables him to free the weight from his limbs with the least expenditure of muscular force; while in every case in which the gunstock deformity prevails he must free the weight from his limbs by a tiresome effort of the deltoid.

Fig. 4.



The differing planes of the radius and ulna.

Having spoken of the normal angle of the lower end of the humerus, I will now call attention to the fact that the radius and ulna are not on the same level at their articulation with this bone. Fig. 4 represents the forearm bent on the arm; and it is plain that the radius is on a much higher plane than the ulna. Now if an anterior rectangular splint (Fig. 5) were placed in position here, it would be seen to rest on the radius *alone*, and could not be made to touch the ulna. Let us apply this splint to a fracture of the internal condyle, and to make the demonstration the more striking let Fig. 4 be turned around so as to present a front view, Fig. 6.

Fig. 5.

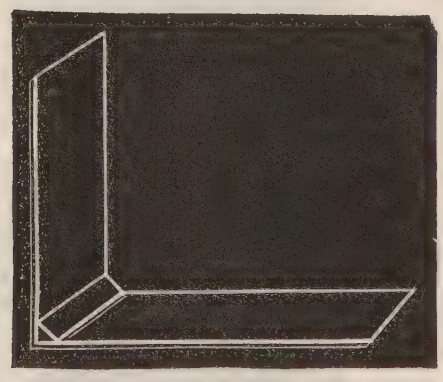


Fig. 6.

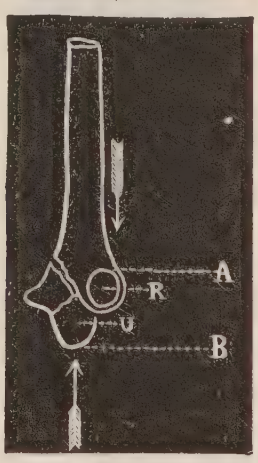


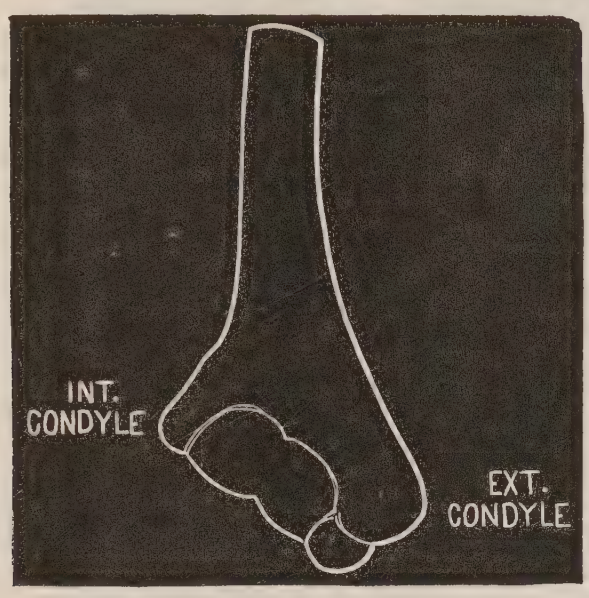
Fig. 5.—Physick's elbow splint.

Fig. 6.—Relations of articulating portions of radius and ulna to lower end of humerus in fracture of the internal condyle.

The splint is now applied and rests above the radius (see line *A*), while the bandage is applied around the forearm, and makes pressure between the splint and the ulna (see line *B*). Now the splint rests on the radius, and as the radius is attached to the unbroken portion of the humerus, the pressure of the bandage will not affect it. But

the pressure will affect the ulna, for it is no longer fixed, since its attachment now is only to the condyloid fragment of the humerus, and the upward pressure of the bandage will carry this fragment upwards, as seen in Fig. 7; a condition that is present in many

Fig. 7.



Altered shape of the lower end of the humerus after fracture of the internal condyle. The whole deformity is produced by the elevation of the condyle. See Gurlt, *Knochenbrucke*, vol. i. p. 317.

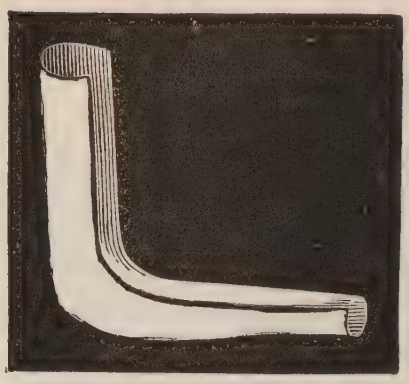
deformities from this cause. The fragment is often twisted and carried forwards as well as upwards, and may be distinctly outlined at its point of attachment years after the injury.

This peculiar fracture is often treated with the posterior angular splint, but as the same deformity follows its use, the same effective agent must be at work. When the posterior angular splint is applied, it will be noticed that the movable ulna now lies in the trough of the splint, and the bandage is applied around the whole. The pressure is practically the same as in the first instance: for the radius is fixed to the sound condyle and cannot be moved, while the pressure between the bandage and splint will elevate the splint, and with it the ulna and its attached fragment.

Thus far the fracture has been that of the internal condyle. Let us now take the external condyloid fracture and apply splint Fig. 5. As before it rests on the radius, and the bandage makes pressure between it (the splint) and the ulna. In this case, however, the ulna cannot rise, since its attachment is to the sound inner condyle. But the pressure will dislodge the movable radius, since this time the fragment is attached to it, and as the ulna cannot rise the radius can descend, dragging downward the attached fragment of the con-

dyle, and eventually produce the same deformity as that seen in Figs. 1 and 7. Were the posterior angular splint applied here, the same result would take place.

Fig. 8. Fig. 9. Fig. 10.



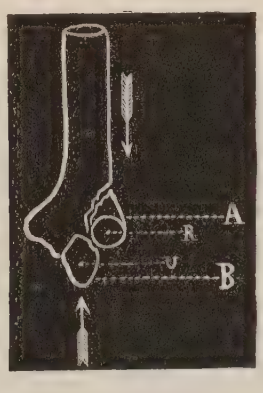
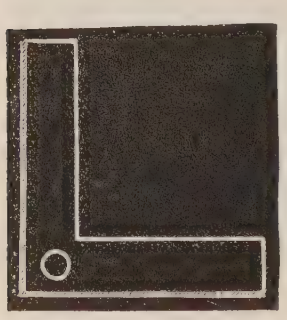


Fig. 8.—Posterior angular splint.
Fig. 9.—Fracture of the external condyle.
Fig. 10.—Fracture of the epiphysis.

Again, when the fracture is above the condyles, it will be evident, by a moment's reflection, that the same deformity must follow the same treatment in the rectangular position; since pressure between the splint and bandage will depress the radius on the one hand and elevate the ulna on the other, and thus produce the gunstock deformity as in the other demonstrations.

Still another splint is used, the internal angular. But this splint will be seen to afford no support to the ulna (Fig. 12), and cannot be safely used when the desire to have a shapely arm is felt.

Fig. 11. Fig. 12.



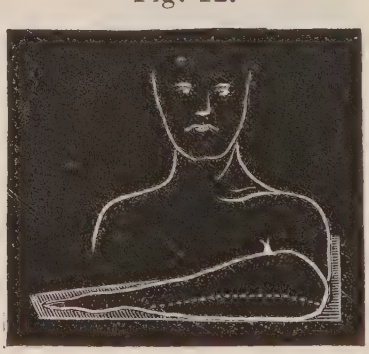


Fig. 11.—Internal angular splint.
Fig. 12.—Relation of bones of forearm to splint.
Dotted line indicates lower border of ulna, and the figure shows how little support the bones of the forearm get from the splints.

I have stated that there was a uniform appearance in the deformity following this peculiar injury. To make this the more striking I have collected a number of cases (Figs. 13*a*, 13*b*), and arranged them with brief histories, so that the eye can take them all in at a

Fig. 13*a*.

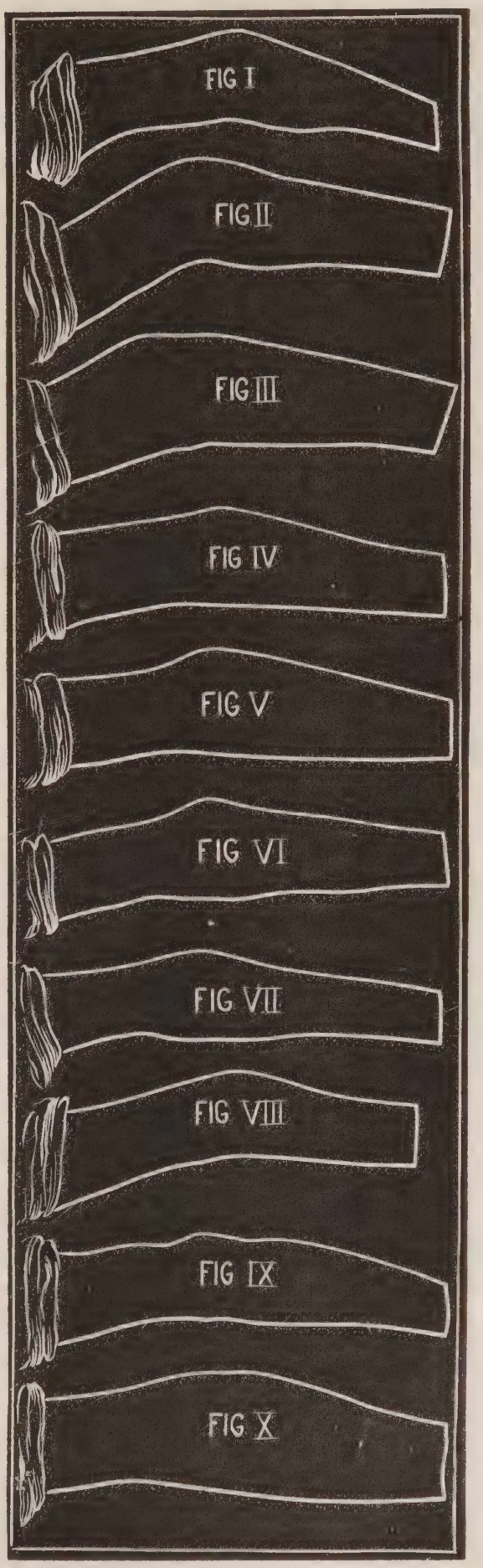


Fig. I.—W. R. Ext. condyle fractured when 13 years old. Internal angular splint. Extreme deformity. Good motion except carrying.

Fig. II.—Louis L. No history. Partial dislocation of head of radius. Int. condyle raised $\frac{3}{4}$ inch, olecranon slightly twisted, no abridgment of motion.

Fig. III.—Fracture of int. condyle. Twist of the olecranon. Condyle elevated $\frac{1}{2}$ inch. Rectangular dressing. Both flexion and extension slightly abridged.

Fig. IV.—J. H., left arm, two years ago. Ext. condyle depressed $\frac{1}{2}$ inch. Line of fracture still very plain. Rectangular splint. Extreme flexion a little abridged. Carrying function lost.

Fig. V.—F. R. G., left arm injured in childhood. No history. Int. condyle now $\frac{1}{2}$ inch above the line of the external. Function good except carrying.

Fig. VI.—Geo. F. Fracture occurred in early infancy. No history. Int. condyle elevated $\frac{3}{4}$ inch, olecranon twisted inward. Motion equal to sound arm.

Fig. VII.—Geo. T. Int. condyle of left arm. Treated with sole-leather splints at right angles. Condyle elevated $\frac{1}{2}$ inch. Good motion.

Fig. VIII.—J. F. Fracture int. condyle two years ago. Rectangular splint. Motion abridged one-half.

Fig. IX.—Taken from Dorsey's Surgery, Edition 1813, vol. i.

Fig. X.—Fracture int. condyle when about six years old. Int. condyle elevated $\frac{3}{4}$ inch. Every function but the carrying. Rectangular dressing.

Fig. 13*b*.

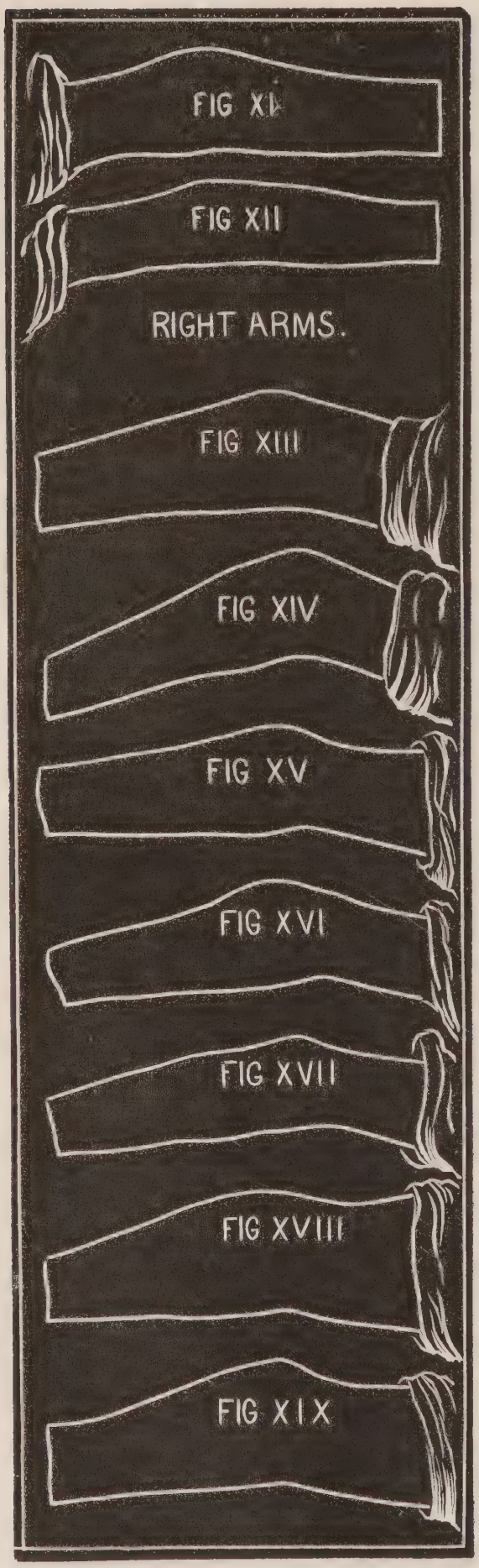


Fig. XI.—From Gross' System of Surgery.

Fig. XII.—R. L. S., 55. Fracture occurred in early life. No loss of function save the carrying.

Fig. XIII.—W. D., 34. Fracture int. condyle in early life. Condyle raised $\frac{1}{2}$ inch above normal level. Treated with wooden rectangular splints. Good movement.

Fig. XIV.—John F., 12. Fracture int. condyle about four years ago. Great deformity. Good function. Angular wooden splints.

Fig. XV.—G. G., 62. Fracture int. condyle in early childhood. Treated on wooden splints. Good motion. Carrying function impaired.

Fig. XVI.—Wm. S. Fracture of ext. condyle. $\frac{1}{2}$ inch difference between the elevation of the condyles. Extreme flexion impaired. Good motion.

Fig. XVII.—W. P., 25. Fracture int. condyle in early childhood. Condyle elevated $\frac{3}{4}$ inch. Olecranon twisted toward it. Good motion.

Fig. XVIII.—Willie W., æt. 10. Ext. condyle fractured. Treated at right angles with lateral sole-leather splints. Ext. condyle $\frac{1}{2}$ inch below its normal level. Every function good save carrying.

Fig. XIX.—Fred. H., 9. Ext. condyle $\frac{5}{8}$ inch below normal position. Good motion. Treated with lateral sole-leather splints, well softened before application.

glance. I could add still more to them were it necessary. No two of these were treated by the same surgeon; yet the results show a striking similarity.

I have in the foregoing remarks made no allusion to muscular action. I have purposely deferred my remarks upon this head; not because they are subordinate in their influence to the splints, but because I felt the two influences, while they always act together, would not suffer by separation in the description.

The muscles most potent in effecting a deformity are (Fig. 14) the brachialis anticus (*Br*) and the Triceps (*Tr*). These in fracture of the internal condyle could displace that fragment upwards since their action is upon the ulna just in front and behind the joint.

Fig. 14.

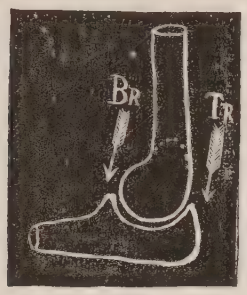


Fig. 15.

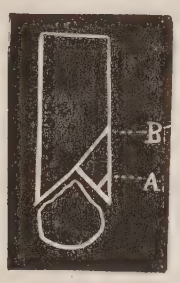


Fig. 14.—Action of muscles on head of ulna.

Fig. 15.—Diagrammatic representation of relations of ulna to condyloid fragments of varying size.

I would not like to say that the fractures just alluded to and treated by these splints must invariably result in deformity, since surgeons have assured me to the contrary. That a good result may occasionally follow the use of an improper splint may possibly be explained by the diagram (Fig. 15). In this figure the wedge below may represent the olecranon; and, so long as the fracture is at *A*, the point of the wedge would catch at the angle, and no pressure of a bandage would effect a displacement; but, if the fracture were at *B*, then the wedge (olecranon) would rise with pressure, as already stated, and push the fragment upward.

Treatment.—It will be noticed that all of my demonstrations apply to the arm when placed in the rectangular position. This is the position almost universally recommended and adopted for elbow injuries, and the argument in its favor is that in case of anchylosis the bent position is the most useful and the most defensible in the *civil courts*. I shall therefore conclude my article with (1) the treatment which in my hands has been unattended with deformity, and (2) my reasons for regarding the danger of anchylosis as based on false pathology and injudicious treatment.

If I were to lay down a course of treatment to be universally applied to these injuries, I would divide the dressing into (1) a provisional one, viz., for the first week, *i. e.*, until the inflammation had subsided, and (2) a permanent one, to follow the provisional and terminate the treatment. It is obviously impossible to lay down arbitrary rules for conducting the treatment of a fracture. What I shall say, therefore, will be upon broad general principles—principles that I believe to be sound in theory, and, what is of still more importance, sound in an extensive experience with this class of injuries.

In the first place, then, I treat all of these fractures in the extended position. I know of but one good reason for treating all this class of injuries in the rectangular position, and that is *convenience.* It is *convenient* when about one's business, or the child playing around, to have the arm treated in the rectangular position, but that which is *convenience for four weeks* may be awkwardness and inconvenience the rest of life.

Taking the arm and ascertaining positively that the fracture is at the lower end of the humerus, I envelop the elbow, arm, and forearm in a *thick layer of cotton*, and over this I apply a bandage; I then place the patient recumbent and insist on recumbency for a week or more. I see the case daily if necessary, and watch the symptoms. If the hand, pulse, tongue, quiet and cheerful condition of the patient, all indicate that no undue inflammatory action is present, I do not disturb the dressing for a week, when I remove it for the permanent dressing. This dressing I apply in a similar manner: first, the envelope of cotton an inch thick extending from the shoulder to the wrist, and thickest at the bend of the arm; second, a layer of bandage which should be applied sufficiently tight to compress the cotton and afford support, and as soon as the first layer of the bandage has been applied, the stiffening material selected for the purpose should be rubbed in, a second and third layer of bandage, each dressed with the hardening substance, should be applied, and the limb placed in an easy position until perfectly hard. There will be little danger now from constriction, yet this statement must not be taken on faith. The dressing must be watched, and œdema in the hand, a sense of constriction, must imperatively demand the loosening of the bandage. This may be done by slitting it up in front and springing it a little off at points of constriction. Sometimes the constriction is at the lower or upper terminus of the dressing, and this being relieved no further swelling will be present.

Instead of the dressing just described, the following may be substituted. Envelop the arm as before with cotton, then apply a

single covering of bandage, cover the whole of this in with *adhesive plaster.* This sort of dressing may be applied from first to last. There is an advantage in this dressing over the starch or hard dressing, inasmuch as it permits the patient to flex the joint a little, which he will do without any instruction from the physician as soon as the pain subsides.

One thought in regard to the principle in these dressings, if understood, will enable the reader to adapt any dressing to the part; viz., if the fracture is that of the internal condyle, the inner hinge of the joint requires repair. As we cannot rivet this fragment to the humerus, we must content ourselves with applying an external hinge. Hence, if we put the limb in an easy extended position and apply a strip of adhesive plaster (an inch and a half wide and a foot long) along the inner and outer aspects of the joint, we have met the indications, and no further appliances are needed than such as supplement these two strips.

To recapitulate, let me say, I avoid all manufactured splints; I never employ stiff unyielding substance—substance which will force the fragment from its true position if pressure is used. All my dressing materials are pliant, and readily take the shape of the limb, and the position that theory and practice have taught me to be in every sense the best is that of easy extension. So long as one condyle is sound, we have in the extended dressing a potent splint in the radius or ulna, and in these instances the adhesive plaster dressing will yield a satisfactory result, but when the fracture is transverse, *i. e.*, at the lower end, or epiphysial, then I would earnestly advocate the stiff dressing of starch, or some similar substance.

Thus far I feel that I shall meet with but little opposition. That which I shall say in regard to anchylosis, and the dangers attending, is a much more important step, and I fear nothing short of experience and disappointment with old and established views, will prevail on any one to accept treatment diametrically opposed to them.

It is usually taught and practised that nothing will prevent anchylosis at this joint but early persistent passive motion, that this must be instituted at the end of the first week and persevered in until the cure is perfected.

My own course is, under no circumstances to employ passive motion during the first four weeks of the treatment. I consider that nature indicates *rest, absolute rest*, by the pain that accompanies all these injuries, and he who follows nature closest will not recklessly, persistently, disregard one of her first laws. But it may be said

that the pain often subsides during the first week, and that the passive motion may then be begun. True, but though the pain has subsided the repair has not been accomplished, and he who begins his passive motion now will find that in three days' time he has awakened a resentment on the part of that joint, that if persisted in will assume alarming magnitude. If rest during the first week has been followed by abatement of swelling and pain, then we have the guaranty at the hands of nature that everything is going on well, and that neither pain nor swelling shall reappear during the entire course of treatment if her laws are regarded. The *absence of pain* and early subsidence of swelling are a sufficient assurance that the plastic exudation—the reparative process—will not exceed the limits of healthy action, and, let me repeat, are hopeful indications of early functional repair and return of usefulness. The anchylosis so much dreaded is usually false, is due to a high degree of inflammation, the result of extensive and long-continued inflammation, and hence, when the symptoms *pain and swelling subside promptly*, we know, if we can ever be said to know anything, that the case is doing well, and in fractures as in other things, the maxim, let well enough alone, is eminently appropriate.

But suppose the inflammation is extensive, that the limb swells inordinately—how treat this case? No rules here can be arbitrarily fixed. In such a case apply the cotton wet with lead-water and laudanum, and over it construct a drip, and let the same liquid, in a condition to suit the case, drip constantly over the inflamed joint. Daily, if necessary, remove the dressing while the symptoms are imminent, and every expedient to subdue inflammation must be resorted to. When the inflammation is extensive and rapid, the injury superadded to the fracture must have been extensive. In this class of cases do what one will, the case will not speedily convalesce. This class of cases will be followed by a long period of pain and swelling, and should not be confounded with the milder ones. In the hands of the most experienced surgeon months—not weeks—will be required for complete restoration. Still the question of passive motion comes up, shall this class of cases go without resorting to it? I answer, yes; so long as the inflammation is acute. In general terms I would say, that in the most aggravated cases do not resort to passive motion during four weeks, possibly six, immediately following the injury.

In the graver class of injuries the resort to ether, and gentle and more extensive motion may be required. Some will say that this could have been avoided by early passive motion, but my experience sustains me in a contrary opinion.

Often a high degree of long-continued inflammation is in a measure due to mal-apposition of fragments or a faulty diagnosis. Should the inflammation continue over a week unabated, I would give an anæsthetic and verify my diagnosis. Even when the swelling is very great I would not abandon the case to the drip upon the naked arm. One of the saddest results of a fall upon the elbow was followed by great and long-continued inflammation, and treated under the drip without dressings. But the displaced condyloid fragment and the twisted ulna have crippled what would otherwise be a useful arm.

To recapitulate, let me say: that passive motion is not indicated in the milder cases, that if let alone the soreness will gradually subside, and with the subsidence of all pain will return functional activity; that in the graver cases early return of functional activity cannot be reasonably expected, and if the patient, judicious care of this class of injuries is followed by functional activity in from two to six months, nothing better could have been obtained.

One word more in regard to the so-much-talked-of anchylosis: if it is to anchylose, what is the best position? Unquestionably, the angular. But will any one claim that an arm, dressed for four weeks in the extended position and with accurate apposition of fragments, cannot now be flexed, and that, too, easily, to any desired angle?

PHILADELPHIA, 1604 Spruce St.

REPORTS

FROM

COUNTY MEDICAL SOCIETIES.

FORM OF COUNTY REPORTS TO THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.[1]

I.—CAUSES WHICH MODIFY THE HEALTH OF THE COUNTY.

1. LOCALITY:

   Boundaries of county, and its situation in the State.

   Its proximity to large rivers and the lakes; to mountain ranges; their direction and extent.

2. HYDROGRAPHY OR DRAINAGE:

   Size and direction of watercourses, and of the dividing ridges, or water-sheds.

   Extent of river bottom.

   Power and rapidity of streams; danger and frequency of inundation.

   Quantity of marshy or springy soil.

   Artificial water channels and reservoirs; amount of lockage.

3. TOPOGRAPHY:

   Area and mean altitude of county.

   Population and their lineage; chief avocations.

   Location and size of principal towns.

   General character of surface; principal valleys and eminences.

   Nature and extent of surface destitute of vegetation, tilled, covered with forest, or in grass.

   Agricultural produce; kinds of timber; effects of clearing and of drainage on climate; extent of artificial irrigation.

4. GEOLOGY:

   Geological position, actual location, dip, direction, and extent of the different formations.

   Character of soil, subsoil, and subjacent rock.

   Source and nature of water used for domestic purposes.

   Supply of water to towns; kind of pipes used as conduits.

   Map with geological features named, and colored agreeably to the order adopted by the State Geologist.[2]

5. METEOROLOGY:[3]

   Latitude, longitude, and altitude of observer.

[1] See printed *Transactions*, vol. v. p. 52.

[2] Inclose, by dotted lines with proper marginal references, those sections of the county in which epidemics have prevailed.

[3] Observers for the Franklin Institute, Philadelphia, as well as for the Smithsonian Institution, Washington, reside in a number of the counties, and would furnish all the meteorological information required. See page 16, Part iii. 1858.

Barometric, thermometric, and hygrometric states of the atmosphere for every day in the year, indicating, in columns, the amount in inches of rain, hail, and snow.

II.—MORTUARY TABLES.[1]

1. MORTALITY:
   From fevers; from measles, smallpox, and varioloid.
   From diseases of the lungs and air-passages.
   From diseases of the nervous system.
   From diseases of the organs of nutrition.
   From diseases of the urino-genital organs.
2. CAUSES assigned for death where the number exceeds 10 per cent. of the whole.
3. QUARTERLY TABLES, showing the whole number of deaths of white and of colored persons under 1 year, from 1 to 2, from 2 to 5, from 5 to 10, from 10 to 15, from 15 to 20, and for every decennial period over 20.

III.—PREVALENT DISEASES.[2]

1. EPIDEMICS AND ENDEMICS OF THE YEAR:
   Their origin and march; apparently contagious or not; how affected by race, age, sex, temperament, avocation, circumfusa, ingesta, and the density of population.
2. FEVERS:
   Intermittent and remittent; their frequency as compared with that of former years.
   Typhus and typhoid fevers; smallpox; benefits of vaccination; measles; scarlatina.
3. OTHER DISEASES:
   Observations on their etiology, pathology, and therapeutics.
   Peculiarity of type or tendency.
   Number of cases, and a comparison of it with that of other years.
4. MISCELLANEOUS:
   Medical effects of indigenous plants, and of new remedies.
   Facts of interest in surgery and obstetrics.
   Notices of members deceased during the year.
   List of officers and members.

[1] If, as is to be feared in many counties, the materials for this classification cannot be obtained, the reporter is requested to approximate as closely to it as his means of information will admit.

[2] In describing cases, give the age, sex, condition, and location of patient, season of year, treatment, and termination.

REPORT OF THE ADAMS COUNTY MEDICAL SOCIETY.

In making the report of the Adams County Medical Society to the Pennsylvania State Medical Society, I am sorry to state, that with the exception of several papers handed me to be briefly noticed the report will fail to reach the usual standard of interest and instruction, that should characterize all such medical reports. A failure on the part of members in different sections of the county to send communications respecting their practice, amounts to a failure on our part to present correctly the health of our county. We rely mainly upon these reports for a basis, and the non-appearance of them is due largely to downright negligence, or a deplorable slowness resulting from a want of interest. A reference to the minutes of the past year does not help the matter any; they are not full, they are not satisfactory. We find by referring to them that the association met in regular session three times during the year, or one meeting every four months, the attendance was small, a few papers were read, no increase in membership, no well regulated medical discussions, the business portion hurried through, and a disposition to call for an early adjournment. In fact the most prominent feature of all our meetings, for the last year or two, has been a decided want of interest manifested by a majority of the members. It is true these are unpleasant developments, and I am somewhat reluctant in making them, but, on the other hand, it is also true that if the Society will lie supinely on her back, and allow this incubus to rest upon her, it will ere long be the cause of her entire dissolution. There is no reason why Adams County should not come to the front, and boast of having to-day a strong, a well-equipped, and active medical society. Our county gives employment to over forty medical practitioners, yet out of this seemingly large number, an examination of the roll does not reveal more than about fifteen in good standing. This certainly shows a condition of affairs to be deplored, and added to what has already been said, if allowed to go unchecked the results will be inevitable and disastrous. The absolute requirement at present is a uniform and determined line of action on the part of the members to raise our Society out of

this low ground into which it has been allowed to fall, and have it enjoy a prominence to which it is justly entitled. It can be easily accomplished, and only calls for a persistent and a combined effort from its members. But I do not wish to dwell longer on this subject, and sincerely hope the above remarks will not prove offensive to any who may read them. The object is primarily to stimulate the indifferent and careless, and awaken such an interest that will place our association on a sure and solid basis for the future.

Dr. Pearson, of York Springs, submitted a paper on *Congestive Dysmenorrhœa.* The patient, an unmarried lady aged about 24, had suffered with difficult and painful menstruation for over three years. The trouble yielded readily to a treatment of the iodide and bromide of potassium in combination. During the continuance of the pain an anodyne was administered—a simple but effectual remedy, and highly recommended by the doctor.

Dr. Noel, of Bonneanville, reported an interesting case of *Amenorrhœa* occurring in a young unmarried lady, between 18 and 20 years of age. The differential diagnosis to be made in this case was between retained menstrual fluid, and the possibility of an existing pregnancy. The doctor adhered to the former belief, and treated the case accordingly. Eight months after the cessation of the menstrual flow, he was called to her bedside for treatment, and what seemed to him at the same time, to deliver the young lady of a child. He repeated to the family, however, what he had on a former occasion said, namely, his belief of pent-up menstrual fluid. In a short time his diagnosis was confirmed, the uterus contracting strongly expelled a large amount of fluid and bloody clots, emptying completely the cavity of the uterus, followed by a speedy and good recovery. A careful and guarded diagnosis in similar cases is earnestly insisted upon, for a false diagnosis under such circumstances may be the means of blasting the prospects of an innocent young woman for the rest of her days.

Dr. Seiss, of Littlestown, handed in his report, submitting a brief synopsis of the diseases that came under his observation within the last year. Fifty cases of scarlet fever in a mild form with no deaths are reported. During the months of July and August typhoid fever occurred, and one death due to perforation of the bowels. The doctor also reported a somewhat interesting surgical case. A young man aged 17, while handling a sharp pocket knife, accidentally cut himself, and severed the ulnar artery about three inches above the wrist on the left arm. The external wound healed rapidly, but a long treatment followed on account of a persistent swollen and inflamed arm. A resort to the lancet produced temporary relief by

allowing the escape of effused fluids, and thereby taking off considerable pressure. Bandages and local applications failed to be permanent in their effects. The doctor finally concluded to ligate the ulnar artery above and below the wound. After accomplishing this he was gratified to learn that in a short time there was a rapid and a permanent cure.

J. E. GILBERT,
Recording Secretary.

REPORT OF THE ARMSTRONG COUNTY MEDICAL SOCIETY.

THIS county is traversed in its entire length by the Alleghany River, there being 50 miles of its length within its boundary; all the tributaries flow westward into it, the principal ones being Red Bank on the northern boundary, Mahoning, Pine, Cowanshannock, and Crooked within the county, and the famed Kiskiminetas River at the southern boundary. There are no marshes along the river, the flats being small, and, as a rule, the side next the hill is lower than at the river, and as a consequence, towns built on them have bad drainage.

The mean altitude of the river above the sea is 800 feet, and the hills are from 200 to 500 feet more, so that about half the population are above 1000 feet above the sea level. The area is 612 square miles, with a population of 47,538; there are 53 physicians in the county, being one to every $11\frac{1}{2}$ square miles, and one to 900 inhabitants; 19 of these are members of the Society. The principal towns are Kittanning, Parker City, Freeport, Beechburg, and Apollo. The water for domestic purposes is usually hard, being impregnated with carbonate of lime. Kittanning is supplied from the river, the water being exceptionally pure and clear. The amount of rainfall from May 11, 1880, to May 9, 1881, was 45.28 inches; lowest temperature —28° F.

The condition of our Society, we are sorry to report, is not favorable; there is lack of interest from some cause not just apparent; the meetings have been held in Kittanning, the centre of the county, and yet, but for an occasional flicker of its pulse the society would be pronounced dead. But do not hasten to an unfavorable prognosis, as a new impetus will be attempted and the next report will show up better.

There is a tendency in certain country districts to depart from the fee bill, and some cutting of prices has led to the lowering of public opinion in regard to the value of medical services; but the tendency is local. Mortuary tables are not kept by all the physicians, but from informal reports the majority of deaths have occurred from lung diseases and scarlatina. While the latter can hardly be

said to be epidemic, yet it has appeared all over the county in spots having no apparent connection or physical features in common. In Kittanning there were about 100 cases. In the southern portion of the county scarlatina and diphtheria have both been severe.

A number of cases were reported at the last meeting of swelled glands under the sterno-cleido-mastoid muscle; they terminated by suppuration. Drs. T. M. Allison and Stewart were affected, with the former opening externally, the latter through the tympanum from the internal ear. Roseola has been epidemic this spring, and a large number of cases of follicular pharyngitis have been treated through the winter; some were tempted to call some of it diphtheritic, but they usually recovered rapidly without sequelæ. One case of smallpox was reported, and there were a few cases of cerebro-spinal meningitis at Parker City.

Dr. Carson, of Leechburg, not a member, died of septicæmia; while attending diphtheria he had occasion to make a swab for the throat, and while whittling a stick for the purpose cut his finger slightly with his pocket knife; he paid no attention to it, but swabbed the throat and left. A powerful man, six feet in height and well proportioned, he paid no attention to such a trifle. The wound healed; in a short time diphtheria developed in the usual way at the throat; there was no membrane on the cicatrix, and there is no absolute certainty whether the disease was the result of inoculation at the wound or brought about in the usual way. He died in ten days from the injury.

An unusual case of malingering was before the Society at one of its clinics; the patient, a young woman about 20, above medium height, well proportioned, rather pale, modest and of good Christian parentage, never read novels or medical works outside the omnipresent quack almanac, had been treated by physicians for gravel; pieces of calculus were exhibited as having passed from the parts or else pulled away with the fingers.

A chemical and microscopic examination was made by Dr. Alter, who reported the composition as being silica, lime, and hair, and gave it as his opinion that it was a genuine brick-dust deposit, with the mortar and hair as well. She was defended by her physician; but as a simple remedy was given and no return of the deposit has occurred, it is fair to presume that the general verdict of the Society was correct, that is, that she was malingering.

M. H. ALTER,
J. G. CUNNINGHAM.

REPORT OF THE MEDICAL SOCIETY OF THE COUNTY OF BERKS.

In making the report of the Medical Society of the County of Berks to the Medical Society of the State of Pennsylvania, the committee deplores the slowness of members to send reports of their practice in the different sections of the county.

I am happy to announce that the stated meetings of our society have been well attended, and matters of interest to the profession discussed. Harmony pervades the entire ranks of its members, and all seem fully resolved to take, if it were possible, a more elevated stand for the advancement of our noble and honored profession. There is medical skill outside of our society, men who could associate with us, if they could persuade themselves to abide by the requirements of a legal practice, and by the morality, propriety, and congeniality of a well-ordered society.

Of the diseases most prevalent during the past year, I would especially mention diphtheria, scarlatina, and intermittent fever.

Diphtheria has prevailed to some extent in my own field of practice during the past year. When it attacked a patient, the modus operandi was the following: The germs of the disease became located on a surface which provided a favorable soil for their development and multiplication, just in the same way as the germs of typhoid fever select the mucous membrane of the bowels. In this disease the locality chosen by the poisonous particles is the throat and the neighboring mucous surfaces. Here these *materies morbi* implant themselves, becoming attached by the tenacious and viscid secretion of the tonsils, the warmth and moisture of the parts favoring their further development and progress. A dense fungoid growth is the result, at first of limited extent, but gradually encroaching upon the surrounding healthy mucous membrane. The very presence of this deposit—I refrain from calling it an exudation—results in inflammation of the subjacent and surrounding tissue. We may, and often have, a diphtheritic deposit without the slightest constitutional disturbance. I have often seen diphtheria in its early stage without the general system having apparently been affected in the slightest degree; and I venture to say that

diphtheria in its incipient stage, rarely affects the general health. Moreover, if the patient be strong and robust, some time will elapse before constitutional symptoms will manifest themselves. On the other hand, if the victim be weakly and in feeble health, or if his vital energies have been laid low by breathing foul gases, the disease will run a rapid, and in general, a fatal course. From what has been said, it will be perceived that I conclude diphtheria to be, in its first stage, purely a local disease. It is, therefore, in this stage of the disease that an effectual and speedy cure can be guaranteed. When, however, the disease has for some time established itself on the tonsils, poisonous matter from the film becomes absorbed, first by the lymphatics, as indicated by the hardening and enlarging of the neighboring glands, and then the general system becomes impregnated, and it is at this time that the greatest danger threatens the patient; the vitality becomes reduced, and the poisonous film spreads with increased rapidity, the poison becoming multiplied with most deadly speed within the body. The above conclusions have been gradually arrived at, after carefully observing a large number of cases of this dreadful disease. It is now time to say a word or two on the nature of the deposit, which is the principal feature of diphtheria. This always begins in one or more minute specks or points. These gradually enlarge to such an extent, and coalesce so, as sometimes to cover the whole area of the throat, and often the palate, posterior nares, and larynx. On its first appearance, it most closely resembles an aphthous spot, and indeed the aphthous and diphtheritic diseases bear a very close resemblance to each other in many ways. They both attack the mucous membrane of the mouth and throat; their appearance to the eye is similar; they both indicate a weakened condition of the general health; they are both fungoid in their nature; and I am not sure whether the one may not degenerate or merge into the other. It has been my lot to treat a large number of patients suffering from this disease, and it is with gratitude that I say with almost uniform success. My first consideration is to view the disease as one entailing rapid and severe prostration. This thought impels me to insist on plenty of nourishment in the shape of soups, jellies, and milk, and this from the very onset of the disease. In all the cases, ice was applied night and day to the outside of the neck opposite the inflamed glands. This will at once relieve the parts of the great heat of the inflamed fauces, and prevent the further formation of false membrane. It is very grateful to the patient when properly applied, and at the same time very effectual. Nor is the benefit of it confined to the patient alone, but it extends to those around him by

preventing the generation of contagiousness. If the ice be timely and properly applied, isolation will scarcely be necessary. Besides the use of ice the most efficient remedies for diphtheria are tinct. ferri chloridi, quiniæ sulphas, and chlorate potassa; these have always been highly recommended, and next to the treatment by ice have always given me most satisfaction. As the treatment by ice in diphtheria is met with considerable opposition, and as I have used it with such wonderful results, I cannot refrain from making an earnest appeal to the profession to give it a fair and impartial trial, and I have no doubt the result will be convincing.

Scarlatina made its appearance about a year ago, and continued during the summer until fall. It was at no time virulent in its epidemic character, though all degrees of severity were manifested in individual cases. In the simple form very little treatment is needed; but in scarlatina anginosa, in which the throat takes a form similar to that of diphtheria, ice has been applied as in diphtheria, and with the same delightful results. From this treatment the sequelæ will be less frequent than from any other recommended. In connection with the use of ice, chlorate of potassa, tinct. ferri chloridi, and quiniæ sulphas were given internally.

In several cases of scarlatina in which there was a manifestation of the typhoid element, which always appears to lay the foundation of a malignancy very often fatal, I used ice externally, and chlorate of potassa, tinct. ferri chloridi, and quiniæ sulphas internally, and the result was a counteraction of the typhoid tendency, a cleansing of the throat, a removal of all foul odor, and finally a recovery of the patients.

When intermittent fever made its appearance in this section about fifteen years ago, I noticed that for a number of years it commenced about the month of September, and was very mild in its character and of short duration; thenceforward, every year it commenced earlier, became more prevalent and increased in severity; and by this time we have it in all its eccentricities during the entire year. Indeed, I saw the chills in persons during the coldest days of last winter. Nor is it confined to certain classes of people, but all, rich and poor, high and low, laborers and professional men, suffer alike. In last September I prescribed for as high as sixty persons having intermittent fever in one day. This may seem almost incredible, but I need only say, that I, in my practice, have met as high as ten members of the same family suffering from it at the same time.

The effects of this disease are more dangerous than many would suppose. I am convinced, after treating it for fifteen years, that

unless it be properly treated, checked before prostrating its victim too much, in weak-chested persons it will prey upon the lungs (the weak spot of the system), until the patient dies of consumption.

In regard to the treatment of this disease I have tried everything known to the profession as a remedy, but have found quinine *given in large doses* to be the most reliable. My experience teaches me that in adults ten grains of quinine at bedtime and five immediately before breakfast in the morning for ten or twelve days will check the chill, and to prevent a recurrence, a dose of ten grains should be given every four or five days at bedtime in the evening. For children the dose must be regulated according to the age and condition of the patient.

About a year ago, Wm. S., a man thirty-five years of age, who had been suffering severely from this disease for several years, called to consult me. After hearing a full statement of his condition I gave him four doses of quinine of ten grains each, directing him to take one dose in the morning and evening for two days. Instead of doing so, he took the forty grains at bedtime in the evening in one dose, and although residing in the worst malarial district possible in the county, he has not had the remotest sign of intermittent fever ever since. This is only one of the many cases very successfully treated by me, by administering large doses of quinine.

In connection with quinine I have used the tinct. iodine for eleven years; not to check the chill, but to prevent its recurrence after having been checked with quinine. In old or chronic cases strongly marked with malarial cachexy, and which had been repeatedly and freely dosed with quinine in small quantities, I have used tinct. iodine in ten or twelve drop doses three times a day in water, and found that it not only relieved the patient from the chill, but prevented a recurrence of the same as well. This treatment appears to exert a specific action on the malarial condition of the patient, and by it congestion of the spleen and liver disappear.

Dr. Joseph Coblentz, of the city of Reading, presents the following interesting communication:—

"On the 9th June, 1880, was called to see Ellen R., aged 13 years and 9 months, a girl of more than usual development for that age. The adipose deposit was especially abundant, so much so, that the mother and grandmother supposed her to be dropsical; and to determine that question was one of the reasons for my being called. She complained, however, at the time of my visit, and, as I was informed, for a week or ten days previously, of not being quite well. Seemed, when I saw her on the 9th, to be somewhat dull, listless,

and languid, slightly feverish, rather pallid. Complained of slight pain in the hypogastrium, was costive. The constitutional symptoms were really insignificant. Gave a purgative, and promised to call on the 11th, which I did. Bowels had been moved, patient had slept well the two previous nights. At the time of this visit, she complained of more pain in the hypogastric region; prescribed anodynes. Then the inquiry was started with reference to her catamenia. Was informed that there was no evidence of it, but there was some evidence upon her linens of a slight leucorrhœal discharge. Anodynes again relieved the pain. Next day, 12th, was called to see her again, in what seemed to be an ordinary attack of colic; pain quite severe. Gave anodynes, which soon relieved the pain. Bowels being rather costive, ordered a purgative. When the bowels were moved, she had very severe pain, I was informed, especially in the rectum. The next day, 13th, was called again, when she had very severe pains, which were again relieved by anodynes. On the 14th visited her; was told she had several severe attacks of colicky pains, and when the bowels were moved complained very much of pain in the rectum. During all this time there was no material constitutional disturbance. Loss of appetite, pallor more pronounced, the pulse slightly accelerated. At this visit I suggested an examination, to which no objections were made. Placed the patient on her side, and as the principal difficulty was referred to the rectum, the examination was chiefly directed to that organ. Found the hemorrhoidal veins very much enlarged, and the entire rectum so far as visible very much congested. Introduced my finger partially, felt a tumor which I supposed was the uterus; but the patient was so nervous and fearful of being hurt that the examination was very unsatisfactory. I attempted to examine the genital organs, but here I met with still more resistance by the patient. Tried to introduce my finger into the vagina but failed, more, I supposed at the time, owing to the resistance made by the patient than to any physical obstruction. The two following days and nights, 15th and 16th, she had a number of severe paroxysms of pain, bearing down and excruciating pain in the rectum when the bowels were moved, with considerable pain and difficulty in urinating. On the morning of the 17th, was called about four o'clock to come in haste, as the patient had not slept a particle during the night, had passed no urine from the time of my visit the day before, and the messenger told me the friends thought she could not live much longer. I hastened to her bedside, found her suffering very much and greatly agitated. The first duty appeared to be to relieve the bladder, which

I did with a catheter, drew off nearly a quart of urine, which relieved her very much. I then made an ocular examination of the parts, found the vagina completely occluded; inside of the labia very much congested, a general fulness of the parts, more than was warranted by the abundant deposit of fat, and also found a bulging from within the vagina between the labia. The case was now to my mind plainly demonstrated to be an imperforated hymen. My first impulse was to have a consultation before operating and so suggested to the friends, which was acceded to; the case being so rare and unusual, never having seen just the like before. But upon taking a second thought, concluded not to delay. I directed the father to hold her knees apart, for she made considerable resistance all the time, and I thrust the lancet into the bulging point where I thought the central part of the vaginal opening ought to be. Imagine our astonishment, and the fright of the poor girl, for she thought she would bleed to death, when we saw a stream of almost black fluid, projected at least three feet from the patient. This continued to flow till it was thought at least three pints were discharged. The discharge continued for about one week, diminishing all the time, when it entirely ceased. The patient made an excellent recovery without further medication.

"It may be proper to state that I gave several purgative doses of the mild chloride of mercury to restore the secretions to their normal conditions. This was followed by a mild antiphlogistic and alterative course of treatment.

"The point of special interest in this case, in my judgment, is the entire absence of all constitutional symptoms during all the time this state of things existed; the subject being in perfect health, growing all the while rapidly, becoming quite fat, and very large for her age. The retention must have existed at least for one year, judging from the quantity of fluid discharged. I will venture the opinion that the quantity discharged in this instance was at least twice as large as would be ordinarily secreted during the first menstrual year of the average girl. And it is reasonable to suppose, yea it is certain, that the watery portion of the secretion would, at least in part, be absorbed into the general circulation and be discharged from the body through some other channel. From the date of the operation to the time of the first regular menstrual period was about seven months. There was not the least 'show' during this time; the girl continuing, however, in good health all the time. For the last few months (this being May 10, 1881) she has been somewhat irregular, usually going beyond the regular

period from a few days to ten days, and for once the change did not occur for a period of eight weeks.

"At this time the girl (in size and general development she is a full-fledged woman) is in perfect health, with the exception that she has quite a large goitre, for which she is now under treatment with every prospect of a speedy cure."

JAMES Y. SHEARER, M.D.,
Chairman.

REPORT OF THE COLUMBIA COUNTY MEDICAL SOCIETY.

It may be properly said that at this time our society is in good working order. I am happy to say that from the past few years of contentions in trying members for violation of professional duties, we have come to genuine feelings of social understanding and mutual support.

Columbia County for the past year, as usual, has been prolific of diseases of almost every name and order, generally sparsely distributed, with a few exceptions of epidemic tendencies. If there have been any new theories or plans of treatment different from what are found in text-books, I have not been informed of them. The diseases to which our attention has mostly been directed during the past winter and present spring, and which may be chiefly due to the severe cold weather, are coryza, catarrh, pneumonia, rheumatism, diphtheria, scarlet fever, and many other affections of a class having peritoneal and inflammatory tendencies. The cases that I shall offer are complicated and exceptional, in which I desire to give more of the pathology than the medical treatment, as the latter is fully defined in text-books to meet each individual indication of diseases as they present themselves. The first is one that has for its origin, exposure to cold and over-exertion.

Miss K., age 21 years, told her story, November 24, 1880, as follows: A few days prior she had walked twelve miles to see a friend and was chilled through, from which she had not been well up to the time of my visit. I found her suffering with several swollen and painful joints, much fever, and pulse one hundred and twenty to the minute; constipation, diminished secretion of urine, an intolerable fetor of breath, a closely adhering, brownish-yellow coating upon the tongue; the left ankle, knee, the elbows and metacarpal joints were swollen with spots or streaks of red. I directed the patient to take a physic of sulphate of magnesia, to be followed with Dover's powder every four hours, and a solution of citric acid, until my return. The following day I found the streaks of red about the ankle and knee had entirely disappeared; but upon the knuckles they remained for several days. The left leg from the

middle of the calf to the groin had swollen to twice its natural size, uniform and perfectly white, with an aching and much tenderness about the knee, and soreness along the course of the large vessels and nerves; pulse one hundred and ten, fetor of breath and some gastric weakness. I gave sulphate of magnesia, to be followed by comp. liquor opii and chlorate of potassa every four hours; the limb to be enveloped in flannel wrung out of hot water for five or six hours, and then anointed with sweet oil and laudanum. After a week's treatment the swelling began to diminish and the limb change in form; the upper part of the leg from the groin along the course of the femoral artery became depressed or flattened, the swelling of the knee did not diminish, but increased in size and intensity of pain and great heat, pulse at ninety-eight. I applied cantharidal collodion and linseed poultice to the knee. At this time I was aware of the fact that I had in this case months of medical, if not surgical treatment before me. Internally my treatment had for its object the overcoming of functional disorder of heart and kidneys—the liver, stomach, and nervous system were greatly in sympathy—for which purpose I had recourse to mercury, colchicum, bicarbonate of potassa and soda, bromide, iodide, and acetate of potassa, opium, and chloride of barium, given in different forms at different times, as the urgency of the case and indications demanded, and my judgment would permit. In the local treatment I relied mainly upon anodyne liniments, blisters, bandaging, and rest. Next to the blister I had more confidence in a snugly applied bandage from the foot to several inches above the knee, and absolute rest, than in anything else.

After a treatment of three months the patient was able to move cautiously upon crutches, and at present has the perfect use of the limb and joint. In this case were developed rheumatism, phlebitis, and synovitis at the same time, induced by cold and fatigue, without any apparent inherent idiosyncrasy to provoke them.

I have another case: a lady whose care and mind had been closely occupied in the welfare of a child that was just convalescing from scarlet fever at the time of the onset of her malady.

Mrs. H., age 46, stout, robust, up to the time of the commencement of her present sickness had excellent health. I was summoned March 21, 1881; found her suffering with severe throbbing pain in her head, tenderness and stiffness in cervical region of spine, bloodshot eyes, swollen lids, tongue with a brownish coating or dirty white, with thick opaque patches of diphtheritic exudation upon the pharynx, a quickened respiration, an increased murmur and dulness of sound over a considerable portion of the lungs, pulse

quick, small, and wiry, cardiac difficulty (probable mitral lesions and regurgitation), deficiency in capillary circulation, cold and clammy extremities; the contracted and anxious appearance of the countenance indicated rapid prostration and evident collapse in a few hours, if some agency were not interposed to remove the difficulty. Here was a case that I at first supposed depended upon some direct exposure, which was not wholly the case, as the sequel will show. The general disturbance or confusion of symptoms, caused by sympathetic nervous action, made a correct diagnosis more difficult, yet the urgency of the case demanded immediate action. It was apparent that the first act should be to reduce hyperæmia and restore capillary circulation, for which I gave Clutterbuck's elaterium in one-eighth grain dose, if not active in three hours to be repeated, with mustard baths and sinapisms to the extremities, nape of neck, and breast, the cathartic to be followed at intervals of three hours with two grains of the sulphate of quinine in cherry wine, to be continued until my return. On the following day I found the congestive symptoms gradually subsiding, indicated by a free circulation and returning warmth to the extremities; pulse one hundred and ten, and feeble. Gave veratrum and citric acid with the wine and quinine. On the third day of my attendance the composure of the patient had returned so as to enable her to give a clear history, which was substantially as follows: For a year or more she had been afflicted with a sense of fulness, and at times an unusual heat of the head, oftentimes pain about the heart, much tenderness of the flesh, stiffness of limbs and joints, and irregular menstruation, and constant dread or aberration of mind that she would lose her reason. She could not assign exposure of any kind as the cause of her present illness. The membranous exudation began to soften and slough as the congestive symptoms subsided, leaving the fauces red and inflamed. The cough, expectoration, and increased respiration, fever, œdematous swelling of the feet and legs, which followed the congestive attack, indicated pneumonia, with the remaining cardiac difficulty, which yielded to the influences of veratrum, the potassæ, acids, narcotics, sedatives, tonics in various forms and combinations, as the urgency of the case demanded. The patient, at this time, after a period of six weeks' treatment, claims to be quite well. From this case I deduce the following conclusions: The lady having a rheumatic diathesis, and arriving at the climacteric period of life, the nervous influence incident to ovarian change induced mental aberrations, increased by the protracted care and anxiety for a sick child, reflecting upon the brain, heart, and lungs, producing functional derangement of a congestive and inflam-

matory nature. The diphtheritic influence, though trivial, may have added greatly to the existing malady.

In Columbia County we have a class of diseases denominated as malarial fevers, formerly the most common and perhaps the least important type, confined to low, marshy districts and to the warmer seasons, except when the effluvia are evolved in poisonous quantities by artificial heat. These periodical fevers cannot all be said to depend upon blood-poisoning from marsh gas alone, or to be confined to any particular season of the year. We have frequently the most pernicious and obstinate forms during the coldest seasons, and on hills and ridges as well as through the valleys. Indeed, this expression, malarial fever, has become so common, that we would suppose that marsh gas existed in infecting quantities at all seasons and in every locality. It is my opinion that we have symptoms in disease that assimilate in character those that arise from malarial poisoning when there is not a vestige of malaria in the case. There are certainly atmospheric and seasonable influences incorporated, as it were, into diseases incident to the human economy developing phenomena in character like those arising from malarial poisoning. It is said of cinchona that it exerts a specific influence in arresting an attack of intermittent fever. As far as my observation goes this is in a great measure correct, but I have never known it to exert such an influence in remitting fevers, bilious fevers, or in different types of typhoid fever which frequently have for their cognomen malarial fevers, although cinchona and its preparations stand at the head of the list of therapeutical agents in the treatment of these diseases.

J. R. EVANS, M.D.,
Chairman of Committee.

During the summer and fall of 1880 malarial diseases prevailed quite largely, the cases were generally of a rather obstinate character; quinia in large doses would readily break up the attack, but unless its use was persevered in, the attacks were likely to return.

Rheumatism prevailed to a limited extent; salicylic acid or salicylate of soda are the most reliable in my hands in cutting short the attack. In one case in which the patient was perfectly helpless, being unable to move the smallest joint, and attended with a very high fever, the salicylic acid relieved him completely in less than forty-eight hours.

The following epidemic diseases have prevailed, viz., diphtheria, parotitis, rubeola, varicella, and variola. In my last report I gave

an account of an epidemic of diphtheria of a very malignant type; the epidemic has continued or rather returned during the present year in a mild form, only one case resulting fatally.

Parotitis of the ordinary type has prevailed largely; quite a number of adults were attacked. Rubeola has only recently made its appearance. Varicella has prevailed extensively among the children. Variola first made its appearance among a lot of men working on a new railroad, and who boarded in a shanty. The first man attacked died, having been taken care of by a couple of Irishmen who imbibed rather too freely to be first-class nurses. One or two other cases are reported to have occurred in the same building. The physician who attended the case also had an attack of varioloid. A few weeks afterwards a woman who was engaged in assorting rags in the paper mill was taken with it in the confluent form; she was unprotected by vaccination; she had been vaccinated once, but did not take. The case recovered. By vaccinating the members of the family and isolating the patient no other cases occurred.

I have under treatment at present a case of aneurism of the abdominal aorta. Dr. Gardner of Bloomsburg saw the case in consultation with me, when we decided to put him on the following treatment. Being full-blooded we performed general blood-letting, and then further reduced the system by catharsis, required him to maintain the recumbent posture for several weeks; we also put him on a restricted diet. The internal treatment adopted was, ergot, subsulph. of iron, and gallic acid; also tr. digitalis alternated with tr. verat. viride; later in treatment I discontinued the iron and gallic acid and gave iodide of potassium. The results of the treatment the first four or five weeks were quite encouraging; the pulsation diminished in force, and the size of the tumor diminished very considerably; but feeling so much better he could not content himself to keep quiet, hence while he is much improved in every way he is not cured. I still have him on ergot and iodide of potassium.

In surgery, I have to report a case of fracture of the olecranon process of the ulna in a lady upwards of eighty years of age; the arm was dressed in the straight position; union of a ligamentous character took place; the bones being separated but a short distance, she has a good use of her arm.

Of railroad accidents we have had rather more than the usual number.

Freeman Fletcher, a brakeman, was run over, mangling his right lower extremity from the foot to above the knee. The limb was amputated, a short time after the accident, at the junction of the middle

and lower thirds by Drs. W. B. and J. K. Robins, J. W. Willets, and myself; he survived the operation but a few hours.

Wm. Betz, a brakeman, was also run over, and had both lower limbs badly mashed to within a short distance of the hips; his system only partially reacted, and he died about six hours after the accident.

L. B. KLINE.

Catawissa, Pa.

REPORT OF THE DAUPHIN COUNTY MEDICAL SOCIETY.

THIS society, starting in 1866 with a membership of about thirty, has steadily maintained itself; and although deaths, removals, and other changes have left but seven of the early members upon its roll, the number is now greater than at any previous time.

Four stated meetings are held in each year, devoted mainly to business matters. "Professional" meetings are held monthly, at which essays and reports of cases are read and discussed, few of which, however, have thus far been published. One of these meetings, that of February 10, 1881, was varied by inviting papers and guests from neighboring societies. The response was gratifying; over one hundred were in attendance, and able papers were read. We endeavored to entertain our guests pleasantly, and we feel sure that such neighborhood meetings are well calculated to rouse a spirit of emulation, and to aid in cultivating friendly feelings amongst the participants.

There being, at this time, no "board of health," nor adequate mortuary record in this county, we do not attempt, at present, to make other than this preliminary general report. The principal diseases we meet are the ordinary malarial fevers and their complications, scarlatina, diphtheria, rheumatism, and the various chest affections in their season. No extraordinary amount of sickness has prevailed, nor have we had any notable epidemics during the past year. The railroads centring at Harrisburg, the various industrial works clustering about the neighborhood, and the mining operations of the coal region, furnish many important cases for surgical care.

In accordance with requirements this society has a duly organized "Examining Committee," which has entered upon its work, and through which it hopes to discourage the preceptorship of students who have not had suitable preliminary education, or who fail to show aptitude for so important a study as that of medicine.

As the matter has been before the State Society (see *Transactions* of 1876, pp. 26–29), it may be proper to say that the differences

which existed between this society and the Harrisburg Hospital have recently been adjusted. All obnoxious regulations of the hospital were abolished; after which such physicians connected with it as gave satisfactory evidence (filed in our records) of acquiescence in the views of this Society were admitted to membership.

REPORT OF THE LANCASTER COUNTY MEDICAL SOCIETY.

In taking a retrospect of the past year, and noting the progress made, we feel justified in remarking that, during no year since its organization (1844) has so much been done to promote the welfare of the society and to advance medical science within the range of its influence.

The stated monthly meetings have all been held, and have been highly interesting and instructive. We feel very much gratified in being able to report that, not only have there been large accessions in membership, but that a most kindly and fraternal feeling has prevailed in all the deliberations of the society.

Numerous papers have been presented, all of which, with the discussions which they elicited at the time of presentation, together with the cases of interest reported at our monthly meetings, have been published in the quarterly transactions of the society.

Our county has been free from any general epidemics during the year. Rubeola, scarlatina, and diphtheria have prevailed quite extensively in localities. We have no means, a matter very much to be regretted, for obtaining vital statistics, but the death-rate from all diseases we presume has not been greater than other years.

From a letter received from Dr. A. G. B. Parke, Gap, we make the following extracts:—

"In this section of the county we rarely have a severe epidemic of any kind; we have a healthy locality, limestone land, and good water. But during last summer and fall there were a number of cases of malarial fever, but of a mild type and readily controlled by full doses of quinia. Have had but three cases of typhoid fever during the year; all, however, of rather a grave form, and two of them showing a more than ordinary amount of malignancy, and having a long and tedious convalescence.

"During the fall and early winter whooping-cough prevailed very generally among children, seeming to pass by few who were not protected by a former attack. A few of the cases were very severe,

and several of them complicated by catarrh and catarrhal pneumonia; one of the latter proving fatal from collapse of the lung.

"During the spring months measles assumed the form of an epidemic, some of the cases being very troublesome from their tendency to complications. One case, that of a child three years old, proved fatal from catarrhal pneumonia attacking both lungs.

"For the past two months we have had more than the usual amount of influenza; in some cases severe and protracted, often leaving a troublesome bronchitis and a liability to frequent relapses."

"Case I.—J. W., a colored man about forty years of age, came under my care in the latter part of last summer. I could get no reliable history of his case, other than that he had been a convict in Moyamensing Prison, and that he had been under the care of the prison physician for some time before he was released. I found him suffering from organic disease of the heart, and supposed from the abnormal sounds present and the violent impulse that there was valvular disease, primarily, with hypertrophy as a result; and this opinion was strengthened by the affirmative answer to the question: 'Have you ever had acute rheumatism?' His disease progressed steadily, uninfluenced by remedies, until in about four weeks from the date of my first visit he died.

"Twenty-four hours after death, assisted by Dr. Plank, of Christiana, I made a post-mortem examination. Found the rigor mortis well marked; a large well-developed body, muscular and compactly built. There was a considerable amount of effusion into the cellular tissue over the lower portion of the body, and particularly the legs and buttocks.

"On opening the chest, we found the heart floating in a large amount of water in the pericardium, and no abnormal adhesions as I had supposed, from the strong impulse impacted to the parietes of the chest, there would be.

"The organ was enormously enlarged and dilated; after removing it from the chest and washing out the blood, its weight was twenty-three ounces avoirdupois. Upon opening the cavities of the heart we found two very large 'chicken-fat' fibrinous clots extending from the auricles to the ventricles, one on either side of the heart; found the valves perfect. The regurgitant murmur was probably produced by the relative shortening of the chordæ tendineæ; thus the enormous dilatation of the heart, through the attachment of the chordæ tendineæ to the valves, prevented perfect closure and gave rise to the regurgitation, and simulated valvular disease of the heart. This was to me an interesting case, and the first of the kind I have ever seen."

"Case II.—E. G., a young married man, twenty-eight to thirty years of age, had been, as he supposed, a confirmed victim to dyspepsia and liver complaint for years; was always 'bilious,' and had frequent attacks of sick-headache. Had taken a large amount of patent medicines, and finally brought up before Dr. (?) Green, now of Lancaster City, I believe. He promised to cure him, said he could 'physic it out of him,' and did in about one month.

"Dr. Baily, of Atglen, had treated him for some time and pronounced his case incurable; said there was malignant disease of the stomach and he could not benefit him. Dr. (?) Green thought he (Dr. G.) could. I was called in twenty-four hours before he died, and just in time to get to make a post-mortem, in which I was assisted by Drs. —— and Plank. Rigor mortis well marked, body reduced almost to a skeleton. On examination externally we found a large and rather firm tumor extending from epigastrium to umbilicus and across abdomen from side to side. On opening the abdomen found the liver, forming the tumor, enormously enlarged, weighing nine and one-half pounds, and cancerous, of the encephaloid variety, softened, and exceedingly friable. Every part of the organ was involved, and large excrescences jutting out all over it, and when an incision was made into it, it resembled as nearly as possible a softened brain, perfectly infiltrated with thick creamy pus. The smaller curvature of the stomach was also involved to a considerable extent. It was softened so that you might readily penetrate it with the finger, and the inside was studded over with fungous outgrowths which had given rise to the hemorrhages which he had had for a time before his death. All the other organs were free from the disease as far as could be seen by the unassisted eye."

Dr. J. P. Zeigler reports the following:—

An Epidemic of Typhoid Malarial Fever in Mount Joy.—The town of Mt. Joy is situated in the limestone section of Lancaster County, and the rock in town varies from ten to thirty feet beneath the surface. The town until 1876 was supplied with water from thirty or forty wells, averaging a depth of sixty or sixty-five feet. After the introduction of reservoir water, supplied by a creek a mile north of town, four of these wells were converted into privy vaults. A number of persons had water closets attached to their houses and the waste carried off in a drain sunk to the surface of the underlaying rock; these are about thirty in number, carrying off not only the flushings from the closets but all soiled water. The summer of 1880 was an exceedingly dry one, and wells which never before gave out became very low. Many persons continued to use well water

after the introduction of hydrants, and owing to the bad odor and high temperature of the reservoir water others discarded it and commenced using well water, which, although highly impregnated with lime, is always clear and cool. Very soon many persons were taken sick, and all had the same train of strongly marked typhoid symptoms; yet some of the well-marked features of typhoid fever were absent in all. The attack was preceded by a general feeling of depression, followed by chills of a decided remittent character; in most cases violent pain in the head, irregularity of the bowels; in the serious cases the fever was very high, and the remission not so well marked. The temperature getting as high as 104° and 105°, with little variation between morning and evening temperature. The emaciation was very rapid and extreme. The patients became stupid and delirious; the delirium in several cases continuing for weeks. Among the forty-five cases treated there was not one but that used well water, while no one that used hydrant water was affected. The treatment varied slightly in individual cases, but consisted mainly in dieting the patient, keeping the bowels in absolute rest, controlling the circulation, and giving quinia and iron. I am indebted to Dr. M. L. Herr, who was called in consultation with my father, and saw with me fourteen cases in different stages of the disease, for a suggestion which I found of great benefit in cases where there was excessive delirium and tympanitis. Dr. Herr's prescription was as follows:—

℞. Ol. terebinth.,
Liq. potass., āā f℥ij;
Syr. papaveris alb.,
Syr. simp., āā f℥j;
Mucilag. acaciæ, f℥ss;
Aqua camph. q. s. ad f℥viij.

Sig.: Two teaspoonfuls every 4 hours.

A post-mortem could not be held on any of the cases that died; but although there was slight hemorrhage in two cases, it was due to hæmorrhoids, and not to any lesion of the bowel, such as would occur in typhoid fever; and though the disease closely resembled that fever, it was lacking many of its features, and was clearly due to the impure water.

MILLERSVILLE, PA., May 9, 1881.

DR. T. M. LIVINGSTON:

Dear Sir,—In response to your request of a recent date for a report of any interesting cases occurring in my practice during the past year, it becomes my duty to report that the general health

of the community has not been good. During the summer and autumn months malarial diseases prevailed to a greater extent than was ever known before, which was probably due to the previous mild winter, the weather not having been cold enough to kill the poison.

The disease in several instances assumed the pernicious or malignant type, which is very unusual in this locality. The disease was in all cases more intractable than usual, relapses occurring in the majority of cases, even when quinine or other antiperiodics were frequently taken as a preventative. A typhoid condition of the system was a marked feature of the disease, constituting typho-malarial fever. The treatment consisted of the usual remedies, quinine, cinchonidiæ, cinchonæ, chinoidine, iodine, and arsenic. I found the latter remedies the most efficacious, given in 10 ♏ doses of each, every four hours until the attack was broken up, then suspended one day, after which it was given in the same doses after meals three days out of every four. I have also found beneficial effects from inunctions of iodine and mercury over the liver and spleen.

Diphtheria was present during the entire year, many cases of which were malignant, and of course died. Having lost all faith in specific medication I have treated the disease upon the expectant plan, and have found just the same results as when giving the most laudable remedies, viz., the malignant cases invariably died, while milder ones nearly always recovered.

In this connection I report that, in conformity to the deductions advocated in an article read before the Lancaster City and County Medical Society over two years ago, viz.:—

1st. Diphtheria is produced by a specific virus.

2d. That virus is inoculable, radiating from the point of inoculation throughout the system.

3d. The disease is protective.

4th. If the disease is protective, produced by a virus, and that virus inoculable, it follows that inoculation or diphtheritic vaccination is the proper preventative means.

Since that time, as well as before, I have carefully watched, and at every favorable opportunity endeavored to test the feasibility of the proposed means, and am more fully convinced than ever of the correctness of the theory, and hope by another year to have sufficient data to prove it positively.

Whooping-cough has prevailed to a limited extent, though in a mild form. In this disease I regard quinia as almost a specific if properly administered. In order to illustrate its effect and mode

of administration I will report a single case. C. S., æt. four years; was called during the third week of the disease, found her with high fever, considerable bronchial irritation, a paroxysm occurring about every fifteen minutes, and very violent in character; I at once prescribed five grains of quinia every four hours in small capsules, with directions to continue until the fever had subsided and the violent coughing relieved, then to suspend its use; she continued taking it regularly (while not sleeping) for two days, getting about twenty-five grains daily, after which she took ten grains daily: upon the third day after commencing treatment she felt relieved, and the fifth day had only five coughing spells, all unfavorable symptoms having subsided. She continued taking the quinia for about ten days in diminished doses when it was suspended. The cough continued several weeks, though not severe, and only happening four or five times daily. The remedy must be given in large doses; very much greater than in malarial fever, and success will be sure.

Very respectfully,
M. L. DAVIS, M.D.

Dr. A. M. Miller, of Bird-in-Hand, communicates the following:—

In the early party of the last year I treated a number of cases of typhoid fever, none proving fatal, but all running a longer course than that disease usually does. The treatment consisted of diaphoretics in the shape of nitre, effervescing draught, and occasionally Dover's powder. The sulphate of cinchonidia in tonic doses was given early in the disease; and when the tongue became dry with tympanitic distension of the abdomen, the oil of turpentine was given with very marked effect. A blister was applied to the nape of the neck occasionally to control delirium when it existed, and the supporting plan of treatment was commenced early in the course of the disease.

During the autumn months more than the usual number of cases of intermittent fever prevailed, some of which were of a varied type, having fever without the chill, and in many instances running twenty-four hours without an intermission, and requiring large doses of quinia or cinchonidia to control the paroxysms. Relapses were frequent, owing to the long-continued draught which prevailed, rendering the streams in this locality remarkably low for a considerable length of time.

Scarlatina also prevailed to a considerable extent during fall and the early part of the winter; the cases being of the simple and anginose variety, all recovered. A very interesting case of

the latter disease occurred in a puerperal woman four days after confinement, the eruption appearing very profusely, with a constant irritation of the larynx, producing a very troublesome cough, rendering it impossible for the patient to sleep for hours. The only remedy that would control the cough was opium in pretty large doses. The disease ran its course in about the usual time and terminated in perfect recovery.

Pertussis and measles prevailed to a very considerable extent during last winter. Some of the cases of pertussis were complicated with bronchitis, which rendered them very obstinate. I found the best results in the treatment of whooping-cough from the use of belladonna. One case of whooping-cough in a little girl aged eight years, took on bronchitis which ended in tuberculosis with great emaciation, night sweats, œdema of the lower extremities, and after six months suffering terminated fatally.

Measles as a general thing ran their course in the usual way, with the exception of a few cases that were slow in recovering on account of bronchitis and great debility during convalescence. One case, that of a child aged five years after having had whooping-cough, was attacked with measles and very severe catarrhal symptoms, which ran into congestion of the lungs with pneumonia, terminating fatally in fourteen days.

Rheumatism, which existed to some extent during the winter and spring months, was best controlled by the use of salicylic acid and the alkalies. I used salicylate of soda to the extent of rendering the urine alkaline in its reaction, invariably followed by a subsidence of the fever, pain, and all the other rheumatic symptoms, without pericarditis, or endocarditis taking place in a single instance. In one case an eruption of the skin took place, like that of urticaria, which Ziemssen says "Lebert saw in two of his cases; and Macario had two instances of it in forty-five cases." The only uncomfortable feature about this eruption was its intolerable itching, which was best alleviated by the free application of rye flour.

During the past winter, pneumonia prevailed to a considerable extent, but in almost every case recovery was rapid after the use of tr. veratrum viride, combined with expectorants, such as syr. squills and senega. Dry cupping over the affected part was sometimes used, followed by blistering in every case, with anodynes in the form of Dover's powder at night—to allay pain and give the patient rest—completed the treatment, which was very satisfactory. After the inflammatory stage was over, milk, beef-tea, and in some cases wine, and sulphate of cinchonidia were given to support the patient through convalescence. In several cases in which the temperature

ran up to 103° and 104° I had the patient bathed with tepid water every evening by means of sponging, which had the effect of reducing the temperature and calming the nervous system, so much that the result was generally a good night of refreshing sleep.

In surgery, the principal cases that I was called on to treat, were an intra-capsular fracture of the neck of the femur in a maiden lady aged eighty years, which occurred by slipping on the floor, causing her to fall with the above result. I had her put to bed, placed the limb in a straight position, and kept it thus by means of pads and pillows for two weeks, then let her sit up on a chair, used no splints, and in the course of seven or eight weeks had the satisfaction to find good ligamentous union, with shortening of about half an inch and general health unimpaired, and patient able to walk about the house with the aid of a crutch.

Also a fracture of the lower third of the humerus in a little boy seven years of age, the result of a fall, which was reduced under chloroform, and placed on an angular splint with a good result in a reasonable length of time, giving perfect motion of the elbow-joint, and complete use of the limb.

But the most interesting fracture that I was called upon to treat was that of the patella in a married lady, who sustained a transverse fracture of the left patella from a fall. The limb was placed upon a straight splint, the fragments brought into apposition and retained by adhesive plaster and a bandage, and in about six weeks pretty firm ligamentous union had taken place so that the patient was able to walk with the aid of crutches; the separation of the fragments was now about one-eighth of an inch. In six weeks after the first accident the patient fell down stairs lacerating the ligament and separating the fragments to the same extent (about one and a half inches) that they were after the first fracture. The same process to bring about repair was gone through with, and in five weeks more the patient was able to walk again with very good union. But, it appeared the woman was doomed to misfortune, for in nine months after the second fracture, she fell again, fracturing her patella the third time. This time I placed the limb on a long straight tin splint (kindly loaned me by my friend, Dr. I. Bushong), and by means of a wooden ring, made to fit over the patella and retained by a roller, the fragments were kept in close apposition until union took place again (which was of ligament), and the patient was able to walk, which she now does without the aid of a crutch.

One case of laceration of the hand and wrist, caused by the explosion of a horse-pistol in the hands of a lad thirteen years of age,

required amputation, which I performed, assisted by Drs. F. M. Musser and J. K. Shirk. The patient made a good recovery.

In obstetrics my cases numbered ninety during the year, of which the greatest number were of the first position of the vertex. I had three cases of face presentation, three of the breech, and one footling; one case of placenta prævia in which I performed version, saving the mother and losing the child. Had one case of eclampsia in a primipara which died, notwithstanding that I used all the remedies generally used in cases of that kind, including free blood-letting, potassium bromide, chloral hydrate, chloroform, hypodermic injection of morphia. It appeared a fatal blow was given to the brain by the first convulsion, for consciousness never returned after she was first attacked; the convulsions continued after delivery, which I effected with the forceps, as soon as the os was sufficiently dilated. The patient had eleven convulsions in all, and died in sixteen hours after the first attack. My friend, Dr. B. Leaman, was called in consultation and corroborated my opinion as to the fact of the serious mischief being done in the beginning. Anæsthetics were used in five cases, forceps in ten. Primipara twelve, multipara seventy-eight.

The foregoing report with the papers presented are respectfully submitted.

T. M. LIVINGSTON, M.D.,
Chairman of Sanitary Committee.

REPORT OF THE LYCOMING COUNTY MEDICAL SOCIETY.

Our Society during the last year has shown a considerable degree of vitality, and its monthly meetings have been interesting, well attended, and instructive. By action of the society, some two years ago, the censors were constituted in connection with their other duties an examining board, before whom those intending to study medicine with any of its members had to appear to be examined. This law had never been enforced till within the last year

There have been also some changes made in the manner of conducting the society, in order to make the meetings attractive and instructive, and among these changes was the appointing of a committee to prepare the State report, whose duty it was to gather the vital statistics of the city and county.

The said committee had blanks prepared and sent to all the members, from whom they expected a report at the end of each month; giving a summary of the prevailing diseases, epidemics, and all other matters of professional interest occurring in their respective practice or locality. These reports were designed to furnish material for our annual report, but the lack of systematic and punctual action on the part of the members has placed in our hands but little material from which to draw.

During the summer and fall of 1880 we had our usual number of intermittent and remittent fevers, and in the city they seemed to prevail to a greater extent than in former years.

Diphtheria, which has of late years become such a dreaded and fatal disease, is an almost constant visitor with us. Isolated cases in different parts of the city occurred during the summer months. About September it began to increase in numbers. At first mild, but during the months of November, December, and January, it proved very malignant and fatal. This spring, although fewer cases have occurred, yet it still retains its fatal type. The disease seemed to prevail mostly in the northern and eastern limits of the city.

The only theory advanced or cause assigned for the disease prevailing in this locality was that by Dr. A. Richter in a paper read before the City Board of Health. The doctor contended that the disease was propagated by the foul emanations arising from a large

soap, glue, and bone-dust factory situated north of the infected district. At this factory they usually have a collection of old bones and refuse gathered from butcher shops and other places, spread over a large surface, exposed to the winds and atmospheric changes, while the odor arising from the manufacturing of soaps and glue is so offensive and penetrating that it can be detected in the air a considerable distance from the factory, especially if the wind is in the right direction. The buildings are located in a valley or basin, north of which are high hills, and south and east is the section where diphtheria prevailed. The greater proportion of cases occurring in this locality were on Washington Street, which runs east and west, and one peculiar fact about this section was, that nearly all the cases were on the north side of the street facing the above mentioned factory. These facts, and the peculiar locality of the factory to the infected district, give rise to a very strong conviction that it had some connection with the disease.

Erysipelas and puerperal fever prevailed to some extent during the latter part of winter and spring. The former disease was mostly idiopathic, although it prevailed quite extensively; neither was it confined to the city, but seemed equally severe throughout the county. These two diseases have been associated together because they not only prevailed at the same time, but in my experience the former disease seemed to be the cause of the latter in more than one instance.

Of eight cases of puerperal fever coming under my experience, three proved fatal. I have not had time to embody in this report a history of these cases, although some very important facts were developed. So strongly was I convinced that these two diseases were associated as cause and effect that in some of my latter cases after the first acute symptoms subsided, I commenced by giving large doses of tr. ferri chlorid., 30 to 40 drop doses, every 2 or 3 hours. The number of cases so treated were of course not enough to make any positive assertion, but in the three cases in which it was given, the temperature, which was ranging from 103° to 105°, began to subside in about 24 hours, and they all made a rapid and uninterrupted recovery.

Dr. T. Lyon reports as follows:—

Scarlatina has prevailed in our city as an epidemic to a greater or less extent for the last year, in some cases taking on a malignant form from the outset. Two of the cases which came under my care require particular mention. I was called March 21, 1881, to visit A. C., aged eight and a half years (male), who was seized with rather a mild form of the disease, and ran its course without any unusual

dangerous symptoms, but the sequela which I shall relate after giving a history of the second was of a most serious character.

His brother, aged four years, was taken the next day with typhoid symptoms, being entirely unconscious for four days—having involuntary evacuation from the bowels and bladder during that period—did not recognize his parents, and with great difficulty could he swallow a little milk; the sphincter of the bowel being so relaxed that it was impossible for him to retain either nourishment or medicine given by injection.

After consciousness returned he was able to take both, and soon made a good recovery. It left his system in a very debilitated state, but tonics and good nourishing diet soon brought about his normal strength again. The former, as already stated, had rather a mild form of the disease, and convalesced April 3d, and was doing well until the 18th of the month, when I was called again in great haste, and found him laboring in a violent convulsion and screaming most terrifically. He could not be quiet until forty grains of bromide of potassium had been administered. The ordinary method of bathing, mustard plasters, and cold to the head had no effect. Left him at 2 P. M. quite sensible, directed a cathartic to be given which operated well, and his symptoms for the time being all improved. Was called again at 7 P. M., and found him in continuous convulsions; there was perfect rigidity of the muscles of the neck, the head being drawn down into the pillow, strabismus, enlarged pupils, one foot and one arm in constant motion. Involuntary evacuations, and perfectly unconscious to everything. As soon as he could be forced to swallow, gave him 10 grains of bromide potassium every hour until the convulsions ceased, using other ordinary remedies at the same time.

I then applied a blister of cantharides from the nape of the neck seven inches down the spinal column, gave five grains of iodide potassium every two hours until all dangerous symptoms passed off. He took in all sixty grains of the iodide of potassium. His urine contained about thirty per cent. of albumen.

On the morning of the 19th, found him much improved; continued the iodide of potassium in five-grain doses every four hours, until all dangerous symptoms passed off. The albumen gradually disappeared, and he was then put upon good nutritious diet consisting principally of milk, and iron as a tonic. He is now, May 9th, entirely free from the disease and its sequela. His little brother has also made a good recovery.

Respectfully submitted,

G. D. NUTT,
Chairman of Committee.

REPORT OF THE MCKEAN COUNTY MEDICAL SOCIETY.

McKean County is situated on the northern border of the State forty-five miles southeast of Lake Erie. It is bounded on the north by New York State, on the east by Potter County, on the south by Cameron and Elk Counties, and on the west by Warren County.

The county has been divided into eight distinct water basins; seven of them drain into the Ohio River, the eighth and smallest into the Susquehanna. The largest basin is that of the Alleghany River and its tributaries within the county, it has an area of 425 square miles; Potato Creek is the most important of its tributaries within this county. The Kinzua Creek basin has an area of 150 square miles, and extends from the centre of the county to its western boundary. The Tunungwant basin has an area of 135 square miles, and drains the middle of the county from its centre north. The smaller basins are: Corydon, consisting of 85 square miles, a portion of Oswaya basin of about 30 square miles, the extreme northern part of the Clarion basin, consisting of 75 square miles, the Tionesta basin of 55 square miles, and the last and smallest basin of the county, the Sinnemahoning, drains the extreme southeast corner into the Susquehanna, and has an area of 25 square miles.

The longest divide in the county is the big level; it extends from Flat Iron Rock, near Olean, New York State, through the middle of McKean County, through Elk and Forest to Foxburg in Clarion County; it is one hundred miles long; its width varies from one-quarter of a mile to four or five miles. Near Flat Iron Rock it is 2400 feet above ocean level; on the hill, opposite Foxburg, in Clarion County, it is 1400, showing in this and other levels of the county a progressive dip to the southwest, while the principal drainage of McKean County is to the north and northwest.

The river bottom of the Alleghany is from one to two miles wide: the upper half of the river, within the limits of the county, has considerable fall affording water power; the lower half has very little fall. The Tunungwant is a narrow valley; the stream affords good water power; it overflows to some extent in Bradford Township. There is no quantity of marshy soil.

McKean County contains 980 square miles, and has a mean altitude of about 1700 feet above sea level. The population is chiefly Americans, though there are a considerable number of Irish, German, Scotch, Swedes, and French in the order named.

Bradford City, with a population of 11,000, is located at the junction of the West Branch and Tunaette creeks, four miles south from the State line. Kendallborough, located a mile north of Bradford, is intimately connected with the city and has a population of 2800. Smethport, the county-seat, is situated east of the centre of the county, and has 2000 inhabitants. Port Alleghany is still farther east, on the Alleghany River. Eldred is also situated on the Alleghany River five miles from the county line. Kaneborough is located in the southwestern part of the county. Rixford is an important town on Knapps Creek. Duke Centre has a population of 2000, and is located two miles north of Rixford.

The general surface of the county consists of broad, flat, elevated plateaux, and narrow, sharp, not very deep valleys.

Prospect Hill, near Smethport, 2500 feet above sea level, is the highest point in the county; the lowest, is where the Kinzua Creek crosses the county line, viz., 1240 feet. Mount Raub, at eastern limit of Bradford City, has an elevation of 2225 feet, and the bed of the Tuna, at Bradford, of 1440 feet. Most of the hills that skirt the larger valleys range in height from 500 to 600 feet.

Possibly one-fifth of the entire area of the county is cleared land; probably not more than one-half of this is under cultivation.

The dense forests of this county consist of hemlock (which furnishes almost the entire lumbering business of the county), beech, maple, oak, chestnut, birch, and willow. White pine has been quite abundant in the valley of the Alleghany, but has been destroyed by lumbering. The undergrowth is composed of laurel, rhododendron, hazel, and scrub oak.

This county lies in the Ninth District or Bituminous Coal Region of the State; its geological formation is quite difficult to determine. The county is entirely drift covered, varying from 5 to 10 feet deep, on the summits, to 250 feet in the valley of the Tunungwant below Bradford, and probably about the same in the valley of the Alleghany below Eldred; the character of the drift is not known. The rocks that form the surface of McKean County that have been drilled through in oil wells belong exclusively to the Carboniferous and Devonian Ages. The formations of the Carboniferous system found here are the lower productive coal measures No. xiii., Pottsville conglomerate No. xii., Mauch Chunk red shale No. xi., and Pocono sandstone No. x. Of the Devonian system are Catskill sandstone

No. ix, and Chenung sands and shales No. viii. The rocks of the lower productive coal measures of the Alleghany River coal series have a thickness here of only 140 feet. The Pottsville conglomerate No. xii. is about 160 feet thick, it contains the Alton coal group. The Mauch Chunk red shale occurs only in the extreme southeastern portion of the county; it is represented in the central and northern portions by five to ten feet of ferruginous shale or black slate. The Pocono formation at Bradford and Smethport is 250 feet thick, at Norwich it is 300 feet, and it increases rapidly in thickness to the southeast. The Catskill sandstone of the Devonian system is about 250 feet thick; towards Potter County it increases in depth. The Chenung sands and shales of No. viii. are divided into three members. The average thickness of the upper member is 1300 feet. The middle member, or Bradford oil sand, has an average thickness of 45 feet, and is found over an area of about 100 square miles. The lower member of the Chenung has been drilled to a depth of 644 feet.

The soils vary much in character; those of the valleys are composed of the subconglomerate strata, and those that are formed of the red Catskill No. ix. are the most fertile, said to be due to a little lime they contain, and which the argillaceous and clayey strata of the Pocono and Chenung formations do not. The soils of the hills and plateaux are from the conglomerate and lower productive coal series. The clayey strata of the Chenung formation prevents easy natural drainage of some of the towns, notably of Bradford.

There are no meteorological data to be obtained.

There have been epidemics of chickenpox and German measles. Scarlatina has not been severe generally; rheumatism has intervened in perhaps one-third of the cases, not a usual occurrence it is believed; these cases with rheumatism have not been fatal. When scarlatina was fatal it was in consequence of throat complication or albuminuria. A few deaths from measles have been reported, caused by complications with pneumonia. Intermittent and remittent fevers are not of so frequent occurrence now as in former years. There has been considerable cerebro-spinal fever through the northern portion of the county, seemingly of a malarial origin. Adults have been affected principally, but it has been more fatal with children; some children dying within twelve hours of the commencement of the attack. Malarial fevers are very prevalent, especially in the valleys, and all diseases are complicated more or less thereby. Inflammatory rheumatism has been quite prevalent.

OLIN S. WRIGHT,
JUSTIN C. ELLIOTT.

REPORT OF THE MIFFLIN COUNTY MEDICAL SOCIETY.

We have nothing to report, and will only offer a paper read before this society by Dr. R. A. Campbell.

A. H. SHEAFER,
Secretary.

Croup.—The diseases commonly known as croup have been to me for a while of more than usual interest: first, I do not like the name, and yet am not sure that I can suggest a better one. It is always easier to find fault than to find a remedy. The name is very ancient, but not long since the disease has been described scientifically, or tried to be so done, I think first by the Scotch. The position I take as to the name of a disease is, that it ought to mean something, ought to explain as to the part diseased or character of the disease. Many of our names do nothing of the kind; some are named for individuals, a practice that ought to be entirely discountenanced by the profession; but as to croup, some French authors contend the name is explanatory enough. The word has only one just claim that I know, that is, some give to the word a meaning of crook or making a hoarse noise, and in this sense might be used to indicate the disease, but I prefer laryngitis; objection may be made to this on account of its termination, denoting inflammation, but this is no valid objection. But you may say we cannot class all inflammations of the larynx in what we now call croup. This is not a valid objection either, but the object of this paper is not to reform nosology, but to record a few thoughts on what we now know as croup. If we still retain this *name* I would subdivide this way: spasmodic cr., pseudo-membranous cr., diphtheritic cr., and traumatic cr., or may use the same prefixes to laryngitis. This division, although the best I can think of, is open to objection. Not long ago I saw a division of this kind, idiopathic cr., systemic cr., denteropathic cr., and traumatic cr. This division is also open to objection, for are not the first three, at least, all *systemics? yea they* must all be systemic, hence the trouble in this division as regards names. So in the division I have made, I call one spasmodic cr.; this includes all four classes, for there is no croup without spasm, there is always something

which acts as an irritant, and that will always produce a spasm; there is a possibility that, where this is continued for a great while, there may be a relaxation of the muscles, but when the muscles of the larynx cease to respond to an irritant, the patient is nearing the moribund state. So in all there is spasm, and therefore all are spasmodic. Again, the pseudo-membranous includes in all four classes, for there is no croup without membrane. What is this membrane? It is certainly only a pseudo-membrane; it is not endowed with the property of vital metamorphosis; it is not capable of generating *de novo;* but it appears like membrane to the eye; microscopists tell us it resembles membrane in the arrangement of its cells and fibrils. Pathologists tell us the ultimate elements are, mucus, mucus and pus, or mucus, pus and fibrine, and that bacteria are present. Now all of these can readily be accounted for, unless it be the bacteria; then this pseudo-membrane is an exuded material, and the product of inflammation. Now, gentlemen, taking this view, is there any croup without membrane? Why, you say, I have always been taught that in what we call spasmodic croup, there is absence of membrane; but, gentlemen, when a patient is relieved, there is always expectorated a glairy tenacious substance, which often requires to be wiped from the patient's mouth. This, gentlemen, is the embryonic pseudo-membrane, the protoplasm, if you please, of the fully developed pseudo-membrane; and again, there is always inflammation, though not always to the same extent. The symptoms of inflammation generally given are, pain, heat, redness, and swelling, and some or all of these are always present. So what objection to the appellation of laryngitis? Then, in conclusion, we will say:—

1st. All croup is spasmodic.

2d. All croup is pseudo-membranous.

3d. There is always inflammation of larynx.

Now, if these conclusions are correct, are all of these classes synonymous? Not at all; just as we have dropsy from different causes, so also with croup. A great deal has been written on two classes, viz., diphtheritic croup and pseudo-membranous croup. Some say they are synonymous; others take the opposite view. Gentlemen, recognizing the difficulty in differentiating clinically, yet they are two distinct diseases, and although it is possible to have diphtheria limited to the larynx, and we may have a deposit of pseudo-membrane in the pharynx in pseudo-membranous laryngitis, and in both have fever, and albumen in the urine, yet there is a difference. Pseudo-membranous laryngitis may result from a variety of causes (yet it may be idiopathic), as may meningitis, peritonitis, and kin-

dred affections; while diphtheritic croup is the result of a specific poison, as is scarlatina or variola; we may have pseudo-membranous croup as a complication of other diseases than diphtheria; while diphtheritic croup only with diphtheria. Of course I cannot say we cannot have diphtheria as a complication of any other disease, but there is one property given to diphtheria that is denied what we denominate pseudo-membrane by the reproducing by contagion. I think both are endemic and epidemic; so, if there is a pathognomonic sign, it is the contagiousness, and, if it were possible to use this test always, it would not be difficult to diagnose every case. I would we could say medicine is one of the exact sciences. Homœopaths claim this, but consulting their books of authority we find them less exact than our own. Of course we know a few things in physiology and materia medica; but, gentlemen, often are we not like some coroners' juries in their verdict: "He came to his death by wound, produced by some instrument in the hand or hands of person or persons unknown"?—we diagnose croup or some other disease from cause or causes unknown. Now, the object of this paper is to stimulate to greater effort to find a cause for every effect. I have been twice condemned by brother practitioners in consultation for expressing my anxiety to find a cause for some effect; they said, Well, what 'll you give him? Let us, if possible, get at the true inwardness of disease, and just now I feel this desire as to croup. I will say nothing as to treatment,—for it is so varied, and withal so unsatisfactory.

R. A. CAMPBELL.

REPORT OF THE MONTGOMERY COUNTY MEDICAL SOCIETY.

In the absence of reports from members of the Montgomery County Medical Society who have not responded to the request to report the condition of the various sections of the county, we have no precise knowledge of the state of health in the county beyond the fact that there has been no alarming epidemic of disease during the year. Much smallpox, scarlatina, and diphtheria have, however, prevailed in some localities. The past winter has been unusually severe and protracted, and there have been a greater number of cases of inflammation of the lungs than usual. Bronchitis has been common, and rheumatism in different degrees of severity has rarely been known to be so prevalent. There has also been much gastric and intestinal catarrh, and few persons have entirely escaped some irritation and disturbance of the mucous membrane of the air passages or intestinal canal. This has been far more general than for many years.

In the treatment of diphtheria, tincture of the chloride of iron and chlorate of potash are still the most potent agents for relief. There is in the first stage an inflamed condition of the mucous membrane frequently, which is best relieved by pieces of ice in the mouth, and a cold wet compress externally to the throat, covered by a dry handkerchief or napkin. In addition to these, the persistent use of the iron and potash in small doses at short intervals continued through the night by all means, rarely fails to relieve formidable cases. A saturated solution of chlorate of potash, with two drachms tincture of iron in four ounces of water, is a good formula, of which a teaspoonful may be given every one or two hours. The addition of glycerine is useful when little mucus is secreted. Perhaps under most circumstances inhalation of the vapor of slaking lime is to be preferred to the use of lime-water in cases of obstruction.

The reporter of the transactions of Delaware County for 1880 corroborates the statement of Reynolds from his own experience as to the efficacy of the tincture of the chloride of iron, in cases of acute rheumatism, and we are led to inquire if there is not a

peculiar virtue in dilute muriatic acid or the tincture of the chloride of iron to strike at the root of many similar disorders of the system. We find it useful in cases suggesting the approach of typhoid fever. It has long been used in erysipelas with acknowledged success.

A patient who had for years had an almost daily bleeding from the nose, was exposed to cold, and suffered a sudden suppression of this habitual discharge with severe chill; there followed intense headache with inflammation, a muco-purulent discharge from the nostrils, and some swelling of the parts involved, only slightly relieved by hot pediluvia, blisters on the temple and behind the ears, etc. He was ill for many days, and at one time the temperature rose to 103°, pulse 108. His tongue for several days was dry and red, in spite of an emulsion of turpentine, and his skin was dry and hot, notwithstanding the use of effervescent bicarb. potash, and nitre, in full doses. The development of erysipelas at this stage suggested the use of tincture of iron, when almost immediately the skin was bathed in perspiration, the tongue became moist and assumed a more natural condition, and the temperature and pulse were soon reduced. The usual means had previously been used without any good effect, to subdue the fever, and moisten the tongue, which showed a condition of great debility, notwithstanding the employment of quinine etc. The dilute muriatic acid, or the tincture of muriate of iron, is certainly one of the most trustworthy and unfailing remedies in diphtheria, erysipelas, approaching typhoid fever, perhaps in the fever itself, and in scarlet fever, perhaps also in rheumatism.

A member of our society, a gentleman of great observation and experience, has urged the importance of depletion in congestion and inflammation of the lung, bringing forward an old remedy which had fallen into disuse; and many members endorse these views, so well expressed in the Medical and Surgical Reporter, to the extent at least that they are fully persuaded that this remedy has been lately too much neglected. Many resort to cut cups in pneumonia, and in plethoric subjects few would hesitate to bleed from the arm in the beginning of a case where the symptoms were urgent. No remedy is so prompt in affording relief to the dyspnœa, and even a condition of great weakness often does not contraindicate the use of the lancet, the bleeding sufficing almost at once to remove a load from the chest, and disembarrass the difficult and oppressed circulation. We have often found the greatest benefit result from cut cups in pneumonia and pleurisy; an improvement becoming apparent, in fifteen to thirty minutes, which we have not seen

produced by any other means; an improvement so marked and decided as to suggest the thought that some deaths might be prevented if this remedy were more frequently resorted to.

The meetings of the society, held about every two months, have been well attended through the year, and much interest has been shown by members in the discussions of the society.

G. P. SARGENT, M.D.,
D. R. BEAVER, M.D.,
ALICE BENNETT, M.D

REPORT OF THE NORTHAMPTON COUNTY MEDICAL SOCIETY.

We have to report continued interest in the society. Six meetings have been held during the year; three at Easton, one at Bath, one at Bethlehem, and one at Chapman's. The meeting at Bethlehem was a new departure in the history of our society, special endeavor being made to make the meeting a pleasant one. To this end the whole day was devoted to it; members of the profession in good standing from the surrounding counties were invited to join with us; Dr. J. Solis Cohen, of Philadelphia, was invited to deliver a lecture; an excursion was planned for the afternoon, visiting the rolling mills, Lehigh University, and St. Luke's Hospital in South Bethlehem, finishing the day with a collation on Calypso Island, a fine island park in the Lehigh River. All who participated, and there were about sixty, pronounced the meeting a perfect success, and the Committee of Arrangements entitled to great praise. In the meeting a resolution was passed forming the corresponding secretaries of Northampton, Berks, Lehigh, and Warren (N. J.) county medical societies into a committee for the purpose of organizing the physicians of the Lehigh and Delaware valleys into a medical association to have an annual meeting similar to our August meeting.

At most of the meetings a paper on some medical topic, prepared by appointment, was presented, and in all of them verbal reports of cases and remedies are made, which were fully discussed. In this way, at the April meeting, Dr. G. T. Fox, as retiring president, gave an address, having for its theme, "The True Physician;" in August, Dr. Cohen lectured upon "Post-nasal Catarrh;" in October, Dr. Fox read a "History of a Case of Addison's Disease;" and at the same meeting the Committee on School Hygiene read an elaborate report replying to certain questions submitted to the society by the Teachers' Institute about heating, ventilation, and contagious diseases; at the December meeting, Dr. John Buzzard read a paper on "Diseases of Gestation and Treatment."

So that the society has been reasonably active in scientific topics. On the topic of hygiene, apart from the above report which contains

general information and not limited to this county, we have but little to report. The subject of drinking water has been agitating the borough of Easton, and the water company had the waters of the Lehigh and Delaware analyzed by Prof. W. H. Chandler, of Lehigh University. As they may be of some interest we copy them here.

Results in grains to the gallon.

	Lehigh.	Delaware.
Lime	1.132	0.856
Magnesia	0.581	0.315
Oxide of iron and alumina	0.023	0.035
Silica	0.317	0.267
Chlorine	0.122	0.153
Sulphuric anhydride	0.706	0.139
Organic and volatile matter	0.437	0.397
Alkalies, carbonic acid, and loss	1.598	1.040
Total residue	4.916	3.202

These ingredients are probably combined as follows:—

	Lehigh.	Delaware.
Sulphate of lime	1.200	0.236
Carbonate of lime	1.220	0.353
Carbonate of magnesia	1.220	0.662
Chloride of sodium	0.201	0.252
Oxide of iron and alumina	0.023	0.035
Silica	0.317	0.267
Organic and volatile matter	0.437	0.397
Alkalies and loss	0.379	.....
	4.916	3.202

Water taken for analysis on the morning of September 4, 1880, when the rivers were very low. That of the Lehigh from near the crib where the company draws its supply. That of the Delaware, at a rock in mid stream above the mouth of the Bushkill. The waters also contained the following ingredients, expressed parts in a million parts of water.

	Free ammonia.	Albuminoid ammonia.	Chlorine.
Lehigh	0.018	0.066	2.09
Delaware	0.022	0.106	2.63

Another examination made on water collected at the same places on September 18th after the rivers had been raised a few inches by rainy weather.

	Free ammonia.	Albuminoid ammonia.
Lehigh	0.029	0.040
Delaware	0.024	0.140

"From these results I regard these two waters of the Lehigh and the Delaware as good waters, comparing favorably with the water supplies to most of our large cities. For manufacturing purposes the Delaware is somewhat the better, as it contains less inorganic matter, to which is due the incrustation of steam-boilers. For domestic use I regard the Lehigh water as the better, as it contains less chlorine and yields about the same free ammonia and much less albuminoid ammonia."

The committee deplores that the individual members, whose duty it was to furnish the material out of which this report was to have been constructed, have failed to supply their share of material. This is to be regretted, as a report, to be at all complete, can only be made so by communications from workers in different parts of the field. The report must therefore be meagre. We believe that many important and valuable facts are lost to the profession by the neglect of practitioners to take notes on important cases and their treatment, and report them in order that they might be kept for future reference and study.

As far as we are able to report, the health of the county during the past year has been unusually good. Diphtheria prevailed in some localities, but not as an epidemic, the deaths not being a large percentage of the cases. Some townships in the northern part of the county were visited by a general epidemic of whooping-cough and mumps. In some few instances infants succumbed to the violence of whooping-cough, complicated with pneumonia and bronchitis. Parotitis attacked children, youths, and adults of both sexes, attacking whole families at the same time. In some cases the swelling was moderate, in others as large as the fist, preventing chewing or opening the mouth, and causing much pain. In one case Dr. Uhler was called to see a young man, æt. 18, who had an attack of mumps, declaring itself by headache, loss of appetite, moderate fever, swelling of the parotid glands and the tissues in their neighborhood. A few days later he underwent exposure to cold and wet, which was followed by a high fever, with a full bounding pulse, furred tongue, pupils dilated, headache, subsidence of parotid swelling, but pain and enormous swelling of the testes. Under treatment by rest, soothing embrocations and warm applications of cotton and flannel to the parts, with a cathartic of calomel and compound colocynth powder, and, to control the fever, tr. veratrum viride, and liq. ammon. acet., with a Dover's powder at night, the patient soon recovered.

Dr. U. was called Jan. 20, 1881, to visit Miss S. K., aged 17 years, who was laboring under great præcordial distress, accompanied

with inordinate action of the heart, amounting to a persistent palpitation. The pulse-rate was 130 when he first examined her. The heart's sounds were sharp and clear, and there were no signs denoting valvular lesions or enlargement of the heart. She was anæmic, and somewhat nervous; her parents thinking her trouble was pulmonary consumption, as there was a history of consumption in the family. The protrusion of the eyeballs attracted his attention; the sclerotic with its enlarged vessels was exposed; but vision was not impaired. She complained of dysphagia, and he found, upon examination, slight enlargement of the thyroid gland. Menstruation was regular; appetite poor; and she could not bear clothing tight to her body. Upon further examining, he found the lungs to be normal. So he diagnosed his case, one of those rare affections, viz., "exophthalmic goitre," sometimes described by the appellation of Grave's disease or of Basedow's disease. He prescribed tr. ferri chlor. with strychnia; and to control the heart's action, bromide of potassium with tr. veratrum viride, three times daily, using the veratria instead of digitalis usually recommended, thinking there was no œdema in the case, and it might have a good effect upon the sympathetic nervous system. This steadied the heart's action, and improved the patient's condition. He also put her on a diet chiefly of milk and farinacea, with no tea or coffee. At this day of writing, convalescence is well established.

We extract from the minutes some of the more important topics presented during the year.

Dr. G. T. Fox, of Bath, at the February meeting, 1880, read a paper on "Plaster-of-Paris Jacket."

Katie C. B., aged 7 years; the father died of phthisis, the mother died of typhoid fever. Never noticed anything wrong about the child until about four years ago, when she had a fall, and shortly after a lump appeared in the dorsal region. She was taken to New York on the advice of medical gentlemen, and a "Wood's brace" was applied; nowithstanding the constant wearing of the brace, the disease progressed; she was then brought to me. The dark line in the diagram represents the condition while standing, four dorsal vertebræ involved. At once on the removal of the apparatus, I noticed that the child stood higher without it than with it, as will often be found on careful measurement, after removing any special instrument, for nearly all, by downward pressure on the shoulder, actually depress the column vertically, while they exercise lateral pressure on the convexity of the spinal curve. The dotted line on the diagram shows deformity during suspension. I found that

the pressure on the sides of the prominent vertebræ caused by the upright of the brace, had produced two large excoriations, also excoriations under the arms. I advised that the child should go without the support for a week, so as to allow these sores time to heal. During this period she was kept in a recumbent position. She was brought to my office at the appointed time, the suspension made, and the plaster jacket applied, and by careful measurement found to have gained one inch and a quarter, and she moved about with ease and comfort, to which she had long been a stranger. The immediate satisfaction and relief afforded, and the rapid and easy cures of Pott's disease and of spinal curvature effected by Dr. Sayre's method are now matters of everyday knowledge and experience, and there are various reasons which commend this plan to us over the brace.

1st. By suspension the body is lifted as near as may be to its erect position, and the jacket retains it in its place. There is always an increase in its height.

2d. The jacket so completely fits the form as to distribute its support evenly about the whole body and thus relieve the spine.

3d. It proves comfortable to wear; the patient breathes easily and naturally with the diaphragm, without any of that short, jerking respiration which is pathognomonic in this class of cases; and the dyspeptic symptoms invariably present soon disappear.

4th. The jacket can be removed and replaced to meet any contingency or changes which may require it, and without so large an expense as to be burdensome to those of moderate circumstances.

At the October meeting, Dr. Fox reported a case of Addison's disease.

C. B., aged 32, consulted me last spring, and gave the following history: Always enjoyed good health until the spring of 1878, when she complained of general weakness and faintness, on the least exertion, also frequent attacks of palpitation of the heart; she had taken medicine for some liver trouble, and said that she had jaundice at the time, but never noticed the ash-colored stools.

The first thing which formed the basis of my observations was a peculiar discoloration of the skin, which was of such a dingy hue that but for the features the patient might have been taken for a mulatto. The discoloration is mainly on the face, upper and lower limbs; around the waist the skin is normal; the freckles on the face are black; she has a large wart over the right hypochondrium that has the appearance of melanosis, but shows no symptoms of malignant disease. Her symptoms then were pain through her whole body and limbs, slight pain over the region of the liver, and I found slight

enlargement of that organ; bowels regular, dejections normal in appearance; urine normal in appearance and quantity; menstruation irregular and deficient in quantity, and has had no show for some months; more or less headache; cold hands and feet; frequent attacks of palpitation; general debility; loss of appetite; nausea

Reduced copy of diagram.
Light line (1), before suspension.
Dotted " (2), after suspension.
Heavy " (3), present condition.

Height before suspension, Oct. 30, 1878, 3 feet $8\frac{1}{4}$ inches; after suspension, and the plaster jacket applied, 3 feet $9\frac{1}{2}$ inches; a gain of $1\frac{1}{4}$ inch; present height, 3 feet $9\frac{7}{8}$ inches; an additional gain of $\frac{3}{8}$ of an inch.

at times; emaciation; the pulse frequent and feeble; for all or most of these symptoms no adequate cause could be found. I attempted to remedy the prominent symptoms, viz., those pertaining to the liver and the impaired appetite; for this purpose I gave dilute nitro-muriatic acid and tonics, and considered my first prescription in a manner empirical. Dr. Thomas Addison, of England, describes a class of cases of severe anæmia, with a peculiar discoloration of the skin, and presenting certain prominent characteristics such as I have described, which are due to or are accompanied by disease of the supra-renal capsules, and I am forced to believe that my case is an example of "Morbus Addisonii." She is taking at present

arsenic, with bitter tonics and iron, and nourishing diet, and she is improving in flesh and strength. What the result of the case will be remains yet to be seen. Thus far nearly all the examples have terminated fatally. That the supra-renal capsules perform some important office in the animal economy there is no doubt, but what that office is we do not know, and hence must be content for the time with believing that they serve in some way to minister to the elaboration of the blood, in common probably with the spleen, thyroid and thymus glands. So with our pathology, until that becomes more perfect we can do little more than attempt to remedy the prominent symptoms.

At the February meeting, the Doctor reported, the patient is improving under my treatment, the catamenia have returned, and her health is much better—there is a slight improvement.

Dr. I. Ott, of Easton, favored the society with the following very interesting notes of some cases rather unusual in some respects.

Case I.—Mr. A., two weeks before Christmas, 1878, was struck in the right epigastric region by the recoil of a sausage stuffer. He was able for the time to move about, but not till the end of two weeks could he turn over in bed. Up to the 15th of May, he had been under treatment for dyspepsia, when I saw him at my office. Upon examining him I found an aneurism of the abdominal aorta, in the neighborhood of the cœliac axis; since the accident he has had a burning pain, gradually increasing in severity and darting into his sides; no pain in his back; the appetite is very poor, and he sleeps but little. The other organs of his body are healthy. The sphygmogram of his femoral artery shows great deviation from that over the aneurism itself, which is normal. The aorta seems enlarged to about twice its normal size, and the patient perceives its thrill. There is slight murmur in the aneurism. He was put upon acetate of lead, but with no effect; at present he is taking large doses of potassium iodide with some benefit.

Case II.—A boy æt. 4, two months ago had scarlatinal dropsy, and his physician gave him some powders; after a short time his cheeks became swollen to twice their natural size, and the mouth could not be opened. About May 1st, I first saw him; he was unable to open his mouth beyond three millimetres; his tongue could not be projected through the opening between the teeth, and he was compelled to live on liquid food. He was pale and considerably emaciated, and the odor of his mouth was horrible. I could not introduce even the point of my finger between the cheeks and the teeth which were firmly embraced by the tissue of

the cheeks. This case is one caused by the baneful effects of mercury, owing to the deficient acting of the kidneys conjoined with a low vitality. Under sulphur internally and potassium chlorate the mercurial fetor decreased. His jaws were wedged daily with wooden wedges, and he can now open his mouth about eight millimetres, and project his tongue. The prospects of his opening his mouth beyond 25 millimetres are not flattering, as the tissues of the cheek in these cases constantly contract like the cicatrix of a burn.

Case III.—Case of inflammatory rheumatism, no embolism, in a girl of small vitality, æt. 10, whose one lower extremity exceeded the other in size to the extent of about four inches. The peculiarity was a sloughing of the top of the foot due to the great pressure of the exudation; after a month recovery ensued.

Case IV.—A child of 4, had otitis media due to a cold, attended with a purulent discharge. The discharge finally stopped, and three weeks after the child was seized with a convulsive and high fever on a Monday; during the week fever abated, but the stupor increased; by Sunday the child had lain for 76 hours in an unconscious state; pupils reacted but little to light; no tenderness existed over the mastoid cells, nor œdema; no perforation existed in the *membrana tympani.* Made use of at first mercurials followed by iodides, and on Saturday, of a blister below the ear, and locally the vapor of a boiling infusion of hops. The child in the course of three weeks fully recovered; lately the ear discharged a few drops of pus which did not continue.

Dr. Mixsell, of Easton, detailed the following case of *Opium Poisoning.*

The patient was inebriated to the extent of thirty "beers," and was attacked with a malarial chill so that he became violently delirious, and on reaching home he took an ounce of good, *i. e.*, strictly U. S. P. laudanum; at least an hour and a half intervened before medical aid reached him. It was possibly too late for emetics to be of use; besides from the violence of his delirium it was impossible to administer them, since he fought his attendants off. After three hours, when the narcotism began slowly to show itself, the doctor administered 0.0015 gramme ($\frac{1}{40}$ grain) of atropia sulphate, and repeated the dose every half hour. In three hours he left for a short time, but a messenger followed immediately, stating that breathing had stopped, and he was thought to be dead. It took but a few minutes to return; he was deeply cyanosed; absolutely no breathing, no radial pulse, but a high heart-rate. Without any other stimulant to respiration, gave hypodermically 0.003 gramme ($\frac{1}{20}$ grain) of

atropia sulphate; he breathed after one minute; for the ensuing half hour his respiration was three to the minute. Proceeding cautiously so as not to poison with the atropia, 0.003 gramme was given about every twenty minutes until eight hours from the first, when breathing was twelve to the minute. Consciousness gradually returned; as soon as possible the patient was made to swallow hot coffee. As a sequel, sloughing of the integument of the heel occurred of a semi-gangrenous character.

Among the verbal reports was one from Dr. Mixsell, on the relative value of the quinine salts. There are two standards of value, the commercial and the therapeutical; it was upon the former that he wished to report. Through the agents of some of the drug-houses he became acquainted with some of the trade secrets. The army contracts are always made upon the percentage of quinine in the compound, their standard being 74 per cent., and this they purchase in bulk at $2.80 per ounce avoird. Consequently the percentage of quinine in any compound determines its commercial value.

The muriate of quinia contains but 5 per cent. above the standard, and should consequently be quoted at about $3 instead of $4 or $5. The greatest deception is in the trade value of the bisulphate so largely advertised. Analysis runs the percentage down to 60 or 64 parts in 100; hence its commercial value is less than that of the ordinary sulphates.[1] In no one article of the materia medica is the profession more at the mercy of the manufactures than in this. In the early production of quinia the manufacturers found the commonly called sulphate the most stable of the compounds, but we all know its disadvantages on account of its insolubility, hence it is necessary to add an acid, and without great care an excess is used and the patient is compelled to take an acid mixture. He thought that the salt was made so extensively simply on account of the demand from physicians. However, of late years, it has been a matter of examination by several governments, the government of Japan being the first who made such an examination and bought the muriate from the first. In the German laboratories, Binz and his fellow-workers mainly made use of this compound as a destroyer of bacterial growth. The advantages are many. It is soluble in almost any quantity of water. If one simply moistens it with alcohol, in which it will dissolve in equal parts, it can then be diluted indefinitely. It is neutral, it can be combined with potassium iodide or with tincture of ferric chloride. In the case of muriate of quinia and potassium iodide, the taste of each is mutually

[1] Analyses show the percentage amount of quinia in the various salts as follows: bisulphate, 60 to 64; sulphate (of commerce), 73 to 75; muriate, 82 to 84.

disguised. The sole objection, therefore, is its relative commercial value. It is a salt rarely called for in the trade. There is no obstacle in its manufacture that would prevent it from being supplied in quantities as great as the sulphate, and the high price is dependent only on the small quantity handled. That barrier would be quickly removed if the physicians would call for it. Its percentage of quinia is 79, higher by five per cent. than the sulphate, and greatly in excess of the much advertised bisulphate, which contains only 59 per cent.

In the discussion Dr. Cohen remarked, he had noticed that the muriates, as a class, are better for the treatment of the respiratory organs than any other class; whether it is due to the action of chlorine on bacteria is doubtful. On account of the price and for fear of the apothecary substituting the sulphate, he always keeps the muriate of morphia in his office. In diphtheria the chlorides are the most useful.

Dr. Ott called the attention of the society, at one of the meetings, to Jamaica dogwood, a new narcotic. His experiments prove that it causes deep sleep, not followed by nausea nor by the general shaking up that opium gives. The bowels are not constipated, it is a salivator and hidrotic, dilates the pupil, depresses the heart slightly as well as the arterial tension, but not as chloral does; does not excite the brain like belladonna or stramonium. Where opium is not indicated it seems to him it should be preferred to that dangerous cardiac arrester chloral. He used it in a case of abdominal aneurism accompanied by neuralgic pain, with good effect. He noticed that it was rather salivating, and increased the amount of urine and sweat. Dr. Gotwald said he had used it with the happiest results, in a patient who had been suffering with continuous neuralgic pains; everything was tried, morphia, both the sulphate and muriate, chloroform, and other pain destroyers; all failed. He mentioned the case to Dr. Ott, who called his attention to the dogwood, and kindly furnished him with a specimen. It was used by Dr. Cawley; the first teaspoonful had comparatively little effect, and after twenty minutes he repeated the dose, which gave some relief; at the end of another half hour he gave another dose, and the pain was relieved for nearly two weeks; since then by its use she has been entirely cured.

Dr. I. O. H. reports as follows: From the results of a large number of experiments on the spinal cord by the tests of pain, bleeding, and pupil, as well as that of time, by Dr. G. B. W. Field, the physiology of the spinal cord can be tabulated as follows:—

Anterior columns—Conduct in part voluntary motion.

Posterior columns—Conduct co-ordination, impulse, and in part tactile sensations.

Lateral columns—Conduct mainly voluntary and sensory impressions; all the vaso-motor impulses. The inhibitory and sudorific impulses mainly run in the internal half of the middle third of the lateral columns. The cilio-spinal nerves and those carrying impulse to respiratory apparatus also run in the lateral column.

Gray matter—Does not directly conduct anything.

In regard to the central nervous system, there are two kinds of gray matter; one exciting, the other inhibitory, having their separate fibres; the exciting conducting voluntary impulses, which cross over in the medulla oblongata, receiving impulses through the decussation of the sensory nerves in the spinal cord; the inhibitory apparatus having its gray matter mainly located about the base of the thalamus and the head of the crura cerebri; the fibres of this apparatus decussate, the upper limit being the pons at its junction with the crura cerebri, the lower limit being a quarter of an inch below the rib of the calamus scriptorius; they run down the lateral columns of the spinal cord.

He also reports that all hyperæsthesias, anæsthesias, paralyses, and spasms are due to a lesion of one or both of these nervous apparatus.

In regard to irritants of the skin his researches show that the inhibitory nervous system can be called into activity by agents applied to the skin; thus carbon bisulphide applied to one side of the neck in birds causes partial parlysis of the wing and leg of the opposite side, with temporary anæsthesia. Ether, chloroform, volatile oil of mustard, nitrite of amyl, dry and moist heat do not act in this manner. These observations show that the irritants, like mustard, acting on man relieve pain by calling into action inhibitory centres which produce temporary anæsthesia through the spinal inhibitory centres, and call into activity the cerebral inhibitory centres, which by their decussation produce anæsthesia, also upon the opposite side of the body. Thus the benefit of counter-irritation is not only due to circulatory changes, but to the much more powerful agent, inhibition of the nervous system of the part.

T. M. UHLER,
Chairman of Committee.
CHARLES McINTIRE, JR.,
L. H. LAWALL.

REPORT OF THE SCHUYLKILL COUNTY MEDICAL SOCIETY.

SCHUYLKILL COUNTY, located in the central anthracite coal fields of Pennsylvania, is dependent almost entirely for her business activity upon the active working of her buried treasures. The general interruption in the coal traffic influences in a great measure the active employment of her physicians. The spread of disease, its frequency, and its mortality, are not subject to the above influence, only so far as the means of her people will permit the employment of medical aid in cases of sickness or injury. A large number of families throughout the county have sickness, often of a serious nature, and yet never employ a physician; in this manner much that is of interest to the profession and of great statistical importance in the character of disease is overlooked; especially is this the case with surgery. The more interruption in the regular workings of the mines, the less number of injuries. During the activity of trade there is an extended field of surgical cases, from the simple wound to the mangling and lacerating of limbs, fractures of the skull, and, in fact, injuries of the most extensive character. The mortality resulting from severe injuries in our midst compares very favorably with any statistics we have ever seen published. In fact, many of our surgeons are free to assert the opinion, that our recoveries from severe injuries under home nursing—good air and water, absence of hospital infections, etc.—give us a percentage largely in our favor as compared with general hospital treatment. If many of the important cases were properly reported to the journalistic world, the opinion that I assert would be amply confirmed. The success attending trepanning of the skull has been remarkable —of lithotomy, of amputations single and double, equally so.

The Medical Society of the county is in full working order and professional interest. During the past year the meetings were very well attended; papers on important cases or original subjects occupied the attention of the Society at each meeting. The slight legal protection our law makers matured for us, has been put into effective working. The Society employs counsel, and wherever the barnacles

fasten themselves upon our people, an officer of the law notifies them to exhibit—procure a license, or decamp. The latter movement is generally selected by the travelling impostor and charlatan. It is to be hoped that the day is not in the distant future when the profession will at least be aroused to the importance of using every honorable means to secure protection for themselves—the arrest and, if possible, imprisonment of the travelling quacks that are degrading the calling, injuring the practitioner, and in many instances committing irreparable damage in the community. These empirics have no difficulty in imposing upon their victims. It seems to be a weakness of our nature, to be susceptible to any influence that will lead us in the direction of seeking restoration to health. It matters not who the representative of the healing art may be; the more deficient in acquirements, the more readily are the deluded victims impressed with the supernatural ability of the self-styled professor. His potions are swallowed, his extortionate fees are readily paid, while the poor misguided victim joyously returns home convinced that there is at least "Balm in Gilead."

What the profession needs more than anything else is, special legislation in their behalf by which they can compel people who are earning a livelihood to pay for the professional services rendered. The amount of labor performed by the profession gratuitously is almost beyond computation. For this there certainly should be some remedy. The respective societies should give this subject serious attention, urging upon their representatives the importance of at least making an earnest effort in this direction.

Case of Saturnine Paralysis.—Lewis C., aged 38 years, of bilious nervous temperament, followed the profession of coach painting for at least twenty years. Three brothers of the family were painters. These brothers were subjects of painter's colic. The youngest one died from the last attack. The oldest brother many years ago abandoned the trade in consequence of continued annoyance with constipation and pain, and up to the present has enjoyed good health. The subject of this case continued at the business notwithstanding repeated attacks of painter's colic, the general emaciation, and loss of nerve power incident to the suffering. During the last two years it was apparent that paralysis of both forearms was slowly but surely taking place. The arms were greatly emaciated, flesh was soft and of a jaundiced hue. The thumbs were contracted towards the palm of the hand, loss of hand-power was complete, the gait became weak and unsteady, extreme constipation, headache,

heavily furred tongue with irregular umbilical pain were the symptoms when I was called to treat the case. The use of mercurials with small doses of croton oil remedied the constipation; beef-tea and milk-punch were directed at regular intervals; the use of tobacco was interdicted. As soon as the biliary secretion was established I directed the use of powdered alum and opium with alternate doses of potass. iodidi, the use of which was continued for two weeks. At the expiration of this time a pill was given containing nux vomica, ext. gentian, blue mass, ferri redact., and ext. hyoscyamus every four hours; counter-irritation along the spine and upper extremities morning and evening. In two months the patient was so much improved that he was able to resume garden work. Up to the present time he has remained quite well, no evidence of the saturnine absorption being present. The continued use of alum with opium exerts almost a specific effect in these cases, and should invariably be employed where the cause of trouble points to lead absorption.

Venereal Fungi.—A case of remarkable fungoid growth was operated upon during the winter. The subject was a young woman aged 17 years. She was pregnant with her first child. During gestation decided symptoms of venereal disease were present. A venereal fungus extended completely about the labia of the vagina and anus. The growth was about fourteen inches in extent, two inches in width. The patient was placed under the influence of chloroform, and a portion removed with a scalpel. At this operation the hemorrhage was profuse. Two weeks later the balance was removed with a pair of sharp scissors. The bleeding surface was freely cauterized and the hemorrhage arrested. The liberal use of iodide of potass. internally relieved her from any return of the fungus.

Puerperal Eclampsia.—Mrs. F., aged 31 years, primipara, on the morning of Feb. 8, 1881, was seized with violent eclampsia while in bed. The first attack occurred at 3 A. M. No special attention was paid to this alarming condition of things. The domestic duties of the morning were performed as usual by the other members of the family, the patient lying in bed. In two hours another violent attack occurred; the patient not recovering consciousness from the first attack. At this juncture some of the "intelligent" neighbors were consulted. Their opinion was freely given and allowed to prevail. At 8 A. M. another attack appeared, one at $10\frac{1}{2}$ A. M.,

another at 12, and another at 2 P. M., when the condition of the patient was so alarming that spiritual comfort was first procured, and only upon the decision of the clergy was medical aid summoned. From 3 o'clock A. M. up to 2½ P. M., when I first saw the patient, she had passed through six violent epileptic apoplectic seizures. When I saw her she was evidently insensible; breathing stertorous; pulse 140 per minute; respiration slow and labored; extremities enormously swollen to the extreme ends of the toes; skin white and glossy. Her gestation was approaching the eighth month; face suffused; tongue very badly bitten and swollen; unable to open the mouth. The secretion from the kidneys had been almost entirely suppressed for several weeks; bowels constipated.

I immediately tied up the arm and bled her to the extent of, I think I may safely say, between fifty and sixty ounces. When about to bandage the arm, another violent seizure appeared. The bleeding was continued to about sixteen ounces more. The arm was bandaged; ¼ gr. morph. sulph. given hypodermically over the abdomen. A mixture containing croton oil was ordered to be given as soon as there was any evidence of the patient being able to swallow. In the interim, an injection of castor oil and turpentine in a solution of starch was thrown into the rectum; this was retained for several hours. At 5½ P. M. another seizure occurred, and another at 10 P. M. This was the last. February 9th, patient still unconscious; breathing stertorous; respiration 20 per minute; hypodermic of morphine continued; bowels opened very freely by croton oil mixture; counter-irritation over lumbar region with turpentine and lard applied hot; limbs below the knee freely scarified. The patient was able to swallow during the day. A mixture containing spt. nitrosi dulc., fl. ext. uva ursi, and triticum repens, with carbonate of lithia every two hours; and at midnight of the 9th, a very liberal secretion of urine was involuntarily passed in the bed. The bedding was stained a dark brown; the odor was very offensive. *Feb.* 10th, pulse 88 p. m.; resp. 18; slight return of sensibility; had slept quietly all night; beef essence and quinine mixture during the day; abundant renal secretion going on; œdema of the extremities disappearing rapidly. At 5½ P. M. of the 10th the urine was tested, and found to be highly albuminous. During all this time no impression seemed to be made upon the fœtus; no uterine pain; no discharge. On the morning of the 12th of Feb., four days after the first appearance of the convulsions, it was evident the child was still living. This unusual occurrence was a surprise. The patient continued to improve from day to day; the kidneys resumed their

normal secretion, swelling in the extremities rapidly disappeared, and exactly two weeks from the morning of the first epileptic seizure, Feb. 8th to Feb. 22d, she was safely delivered of a male child, alive and strong, weighing about eight pounds. At this writing both are very well, and bid fair to continue so.

The almost moribund condition of this patient on Feb. 8th was to me so decided, that I prognosticated nothing but the most discouraging results. Had the patient been seen promptly after the first seizure, and the same treatment prescribed, much severe suffering might have been avoided. The decided removal of poisoned fluid by prompt bleeding, I look upon as almost specific in these cases.

The proper treatment in these cases would be the abstraction of blood at any time during gestation when we find the extremities swollen, the renal secretions scanty and thick, bowels more or less constipated. Failing to employ heroic measures, as in prophylaxis, we must not be surprised to find eclamptic seizures during labor, a dead fœtus, and in a very large majority of the cases a dead mother.

Fracture of the Patella.—The discussion going the rounds in the medical journals respecting the surgical treatment and the result in cases of fractured patella, induces me again to refer to a splint with which I have had most excellent results. In one case the union was so complete and strong that the patient was able after the lapse of four months to resume his regular avocation (that of railroading) with no inconvenience.

A padded splint with foot-board, having two cross-ties securely fastened one above, the other below, the knee-joint, at such a distance from each other that the bandage when applied will have the effect of preventing the movement of the fractured bone. The parts are firmly held together by an assistant, when they are first secured with long adhesive strips placed after the figure-of-eight fashion; the splint is applied and the bandage securely passed above and below the cross-ties; an ordinary loose roller is passed the entire length of the splint, and at the end of two weeks the patient can readily move about on crutches.

Scirrhus of Mamma.—In the month of January, 1880, Dr. R. J. Levis, of Phila., successfully removed a scirrhous mamma from a patient at the advanced age of eighty years. The antiseptic spray was used during the operation. The wound was dressed with wire

suture, carbolized zinc ointment, lint compress and bandage. The union was almost complete by first intention throughout the entire incision. The operator was assisted by Dr. J. T. Carpenter. The patient is in the enjoyment of excellent health, and up to the present time she has had no evidence of return of the disease. The case has no hereditary history, and no disease appeared until the age of seventy-eight years.

All of which is respectfully submitted.

D. W. BLAND, M.D.

Pottsville, May, 1881.

REPORT OF THE SNYDER COUNTY MEDICAL SOCIETY.

During the past year our society has held but three meetings. The February meeting was a failure on account of the drifted snow in the roads and the bitter cold—no quorum being present. However, the other three meetings were all good, especially the October, 1880, and May, 1881, meetings. Our membership is now fifteen in good standing. There are ten or twelve practitioners in the county who should belong to our society, but who do not. We expect to admit five of them in less than six months. Some there are with whom every effort of invitation and conciliation has been used to bring them into the society, who might add much to the interest of our meetings, and would certainly receive some profit by their attendance, but they still stand aloof. At our August meeting, Drs. Bordner and Rothrock, who were our delegates to the State Medical Society, through Dr. Bordner, gave an elaborate, detailed, and interesting account of their visit, duties, and pleasures, while attending the meeting of the Medical Society of the State of Pennsylvania, at Altoona, 1880. In this report reference was made to a resolution passed by the State Society, to the effect "that no delegates will be admitted to the next annual meeting of the (State) Society, unless they bring with them evidence of the appointment by their county society, of a Board of Medical Examiners, as required by the Constitution." Dr. I. R. Swigart offered a resolution "that no member of this society be allowed to admit into his office any student who has not passed a successful examination in all the common school branches and in Latin, before a Board of Examiners composed of three members of this society, to be appointed by the President."

This resolution was adopted unanimously. The President appointed the present censors as said committee. (In justice to Dr. I. R. Swigart, I would here state that he, at our meeting in May, 1879, read an article relating to "preliminary education or qualifications of students of medicine," in which he advocated the principles of this resolution.)

We have had no serious epidemics in the county during the last

year. In the northeast of the county there has been considerable scarlet fever during the winter and spring. Diphtheria is still prevailing, but only in isolated instances. Most of our members report cases of pulmonary disease during the past winter and spring.

We have had no death among our membership, but at our October meeting, 1880, Dr. T. B. Lease, of Freeburg, a promising young man, graduate of Jefferson Medical College, 1878, was elected a member, but before another meeting of the society, he ended his career on earth; dying by that dread scourge of the human family —consumption.

Dr. Percival Herman says:—

My experience with scarlet fever has been materially extended during the last year; both in treatment pursued by me in a number of cases, and from myself suffering from that treacherous disease. Since I have been engaged in the practice of physic, five years, it has been my lot to see two epidemics of scarlet fever; the first of which occurred during the first year of my entrance into the medical profession, and which was of a mild and simple variety. The second manifested considerable malignancy, so that my views concerning the nature and treatment of scarlet fever have undergone almost a complete revolution. The cases of the first epidemic numbered sixty; all of them recovered under proper treatment; and, being a firm believer in medicine, as most fledglings are, I attributed the favorable termination wholly to the regularity with which the medicine was administered, and to the quality and quantity of the same. I prided myself not a little in being able to cope successfully with such a dire and much dreaded scourge. But a sad and humiliating reverse was in store for me; in the second epidemic (of last spring), I treated forty-five cases; and all or nearly all these cases were of the anginose and malignant type; in four families five cases died; all bright, loving boys, endeared to their parents and others who knew them. These all died in a very short time from the attack; all was done that human ingenuity could accomplish, but all to no purpose; it appears that death had put its icy hand on a goodly number. Whenever one would be taken sick suddenly, without any precursory symptoms, vomiting would set in, and prostration take place in a few hours from the commencement of the attack. Stimulants, and all other medicines usually given in this disease, had no effect whatever. Very soon after the first symptoms were observed, involuntary discharges and other symptoms denoting a failing of the vital powers would occur, coma set in, and death speedily follow. My former belief—that all forms and varieties of

scarlet fever are easily and successfully managed—has been materially shaken; and my estimation of medical men who claim and prate that they have and employ an infallible, never-failing, and certain cure for this disease is still worse shaken. I doubt their knowledge of the nature and pathology of this disease. I am at this time inclined to think, that a sure cure for scarlatina maligna does not exist and never will be discovered. I do not believe anything short of prevention can possibly lessen the death-rate of the worst form of this terrible affliction.

Dr. I. R. Swigart contributes the following:—

The southwestern part of Synder County lies principally on the water shore between the Juniata and Susquehanna rivers. Being considerably elevated, it is free from all malarial influence to a remarkable degree. For some years there has been no prevailing disease to any extent. During the winter and spring of the years 1879, 1880, and 1881, pneumonia presented some of the features of an epidemic, yet it seemed to be traceable, in most cases, to ignorance of drainage influence and bad ventilation, particularly that of cellars. A few cases were traceable to sudden atmospheric changes. Diphtheria and scarlet fever appeared in isolated cases. A peculiar type of disease of which I have little personal knowledge, combining many of the leading characteristics of diphtheria and scarlet fever, yet distinct from each in other points, prevailed with singular fatality in the vicinity of Troxelville. From considerable observation in other localities, in a malignant form of scarlet fever, and from what I can learn from other sources, I am of the opinion that it is what our authorities describe under the head of scarlatina anginosa.

Being unable to obtain much reliable geological information, and believing that as a whole this region may be considered naturally healthy, and that most diseases, or at least many of them, are traceable to bad drainage and insufficient cellar ventilation, I have decided to give a few observations on that which has prevailed most extensively, namely pneumonia. There are few types of disease of which there obtains so wide a difference of beliefs concerning the cause, pathology, and treatment among the profession, as in this one. Some physicians regard it as almost necessarily fatal, others again as strongly the opposite. It seems to me this ought not so to be. I believe it is one of the few diseases in which the physician can show his skill (or the lack of it), in the treatment, not in *nursing*. As are a man's views of the pathology of pneumonia, so is his treatment, and as we read the daily press and look over the

death columns, we think so is his success in its treatment A man is exposed to some abnormal condition, some atmospheric peculiarity, some sudden change, and he will "take cold." Soon the patient has a "chill," and the doctor says, "wherever the chill strikes we will have disease. If it strikes the bowels, we will have dysentery or entero-colitis; if the stomach, gastritis; and if the lungs, pneumonitis," etc. etc. Now all this looks like fine reasoning, no doubt, to some, but, "How readest thou?"

A man is exposed to the influence, be it what it may, and the abnormal action begins, let us for example say, in the lungs. Inflammation quickly sets in, the capillaries are engorged, nature's attention is called within, and there is a "rush of blood," where? To the surface? No, but to the lung. The cutaneous circulation is almost nil. There is no engorgement of the capillaries of the skin, but instead, a condition nearly similar to that produced by syncope. The result is, the skin is cold, and though a fire is raging within, and the axillary temperature high, yet the surface has no warm blood in it, and the patient has a chill. Now the chill did not "strike" anywhere. It is merely a symptom that within the economy somewhere, there is a disproportionate amount of blood. Instead of it being a *cause*, it is merely an effect. Now, as I said before, the effects of all this are similar in a manner to those produced by syncope, great weakness and prostration, and added to these is the difficulty of breathing. We have now the stage of engorgement, and, if not speedily arrested, we will have the second and more dangerous stage. What shall we do? The man is very weak; shall we sustain him? It is just as you "read." "Milk, whiskey, poultices, and patience," says one great teacher, with something added to check the cough, ease the pain, and quiet the heart.

During the month of March, I was called to see a case under treatment by a graduate of Dr. Buchanan's penitentio-eclectic diving institution, a boy, nine years old, suffering from an attack of pneumonia. The doctor was not on time, and I examined the case; pulse 70; respiration 15; gasping and irregular; great stupor; pupils size of a small pin-head; axillary temperature $102\frac{3}{4}^{\circ}$; marked dulness over lower right lobe; tongue moist, slightly coated; abdomen distended and tympanitic. While looking at him, the boy's father said, "Dr. — is not at all successful with pneumonia, and I was uneasy." A solution of salicylate of sodium standing by the bedside, I asked if any one had rheumatism, and was told that that was what was wrong with the boy the first four days. After a while Dr. — came. "The boy took a chill, and then had acute rheumatism, it took me four days to get that away, and then he took acute

pneumonitis." Recollect the boy has been sick one week, and the lung was now well on in the second stage of pneumonia.

The following is the treatment: tr. aconite root, and Norwood's veratrum viride, one drop of each in two teaspoonfuls of brandy every hour, and one and one-fourth of morphia sulph. in twenty-four hours. No quinine at all, yet he had put a blister on him. The child finally got well, but there was considerable change in the regimen.

But our case has had a chill; great weakness and prostration; pulse high and bounding; all the bones ache; breathing difficult and labored—what shall we do? Shall we use veratrum and aconite, and poultices, and have patience to wait? My practice is, to bleed well under such circumstances. I know many oppose me, especially in country practice, saying he is too weak. But if you consider that the pulmonary capillaries are engorged with blood, and that stagnation may be said to have taken place in the lung, you will readily see what prompt and permanent relief is afforded by bleeding until fainting is threatened. I would give veratrum or aconite, not both, in a moderate degree, and as soon as the bleeding had done its work well on the economy, I would blister. After this a great point is to keep the patient from over-exertion, especially that of talking, and from drafts. As for something to eat, I care very little whether he has anything for the first few days. If his bowels are costive, let him take calomel with jalap, podophyllin and rhubarb in divided doses. After the first few days, I am in the habit of giving whiskey; I give quinine almost throughout the attack.

At our October, 1880, meeting, the following standing resolution was adopted: "Resolved, that annually at the election of officers, and immediately after said election, the newly-elected President, or, in his absence, one of the Vice-Presidents, shall appoint a committee of three members, whose duty it shall be to gather facts, statistics, and other matters pertaining to the history, status, and progress of the medical sciences in our county, as gleaned from the proceedings of this society, and all other available sources, said committee to report its doings and progress at each quarterly meeting of the society, and to draw up an annual report, to be presented to the society at its May meeting for approval and correction, for the use of the delegates to the State Society." The president appointed Drs. Jno Y. Shindel, I. R. Swigart, and Perc. Hermann.

Respectfully submitted,

JNO. Y. SHINDEL,

Chairman and Secretary of Society.

REPORT OF THE TIOGA COUNTY MEDICAL SOCIETY.

TIOGA COUNTY, Pa., was organized in the year 1804, and contains 1124 square miles. The present population is nearly fifty thousand. It is bounded on the north by the counties of Steuben and Chemung in New York; on the east by Bradford; on the south by Lycoming; and on the west by Potter in Pennsylvania.

The resources of the county consist in its vast deposits of semi-bituminous coal, iron ore, fire clay, glass-sand rock, and its forests of valuable timber; its rich and alluvial valleys and highly productive table lands, and its tanning and manufacturing, railroad and mining interests. Nearly a million tons of the very best semi-bituminous coal on the continent are annually mined and sent to market in its raw state or converted into coke. Its tanning interests are very great, the product annually of its tanneries reaching into millions of dollars. Its lumber interests are also large, it being estimated that there are now at the various mills in the county not less than one hundred and fifty million feet. The manufacture of glass at Blossburg and Covington is carried on extensively, and other establishments are in contemplation at Wellsboro. Its quarries of building and flagging stone are assuming a very important place in the industries of the county. Its soil is varied and rich. All the cereals and grasses and plants that can be raised in the middle States are grown here. The cultivation of tobacco is carried on extensively in the valleys, and large cigar manufactories are in operation, employing a large number of persons. It is peculiarly distinguished for its schools and places of learning, containing as many common schools as the old and rich county of Lancaster. Its railroad facilities are good, and additional lines are in course of construction which will develop new sections of the county. Altogether no other section in the commonwealth offers greater inducements to the capitalist who wishes to invest either in manufacturing or farming than Tioga County. Its railroads connect with the great trunk lines of New York and Pennsylvania, and geographically it is delightfully situated. No section of the State has made more permanent progress within the last ten years than this, and it will

continue to prosper until this becomes one of the richest and most productive counties in the State.

The prevailing diseases in our county during the past year have been, in the northern, eastern, and western portions of the county, diphtheria and scarlet fever. In the southern portion about the mines of Blossburg, Arnot, Morris Run, and Fall Brook, while diphtheria has not been known, scarlet fever has prevailed.

Puerperal fever has shown a tendency to develop in many cases of confinement throughout the county, but has not prevailed as an epidemic except in Arnot, where a number of deaths occurred.

Rheumatism has been very common in every part of the county.

Arnot, situated four miles south of Blossburg, is a coal-mining town of 4000 inhabitants. During a practice of more than two years there I have never known a case of diphtheria developed or treated in the town, and what is more wonderful, not a single miner has been stricken with any disease whatsoever that has resulted in death.

Two have been killed while working in the mines, many have been injured, and suffered from fractured bones, while a great many have suffered from what is known as miner's asthma, a result of working in bad air, powder smoke, breathing coal dust, etc. This trouble necesitates many an idle day among the older miners who have worked for years amid these unfavorable surroundings.

Rheumatism and neuralgia have been extremely common, nor would this seem strange when the fact is considered that the miners work in cold, damp places for hours, often obliged to lie down in very cold water to dig their coal, and working in cramped positions where the distance between roof and bottom is often two feet or a trifle more.

The miners as a class are good livers, getting the best of provisions and plenty.

A common practice among them is drinking their toddy on returning from work; whether their mode of life protects them from disease or whether it is chance, the fact remains that disease has not invaded their ranks and death claimed a victim in over two years.

In Blossburg, during January, February, and March, 1881, we suffered from an extremely fatal type of scarlet fever; often death claimed its victim within from forty-eight to seventy-two hours from the time of attack, and a number of families lost more than one member.

March 21, 1881, there were three dead children in our town; two died of scarlet fever. One, a lad of eight years, died of membra-

nous croup; and two weeks later, a brother of this lad, three years old, died of the same disease.

May 3, 1881, there were three more dead children in the town; one died of scarlet fever, one of membranous croup, and one of pneumonia. On the whole, the doctors in our section have been very busy, perhaps too much so for the good of the community.

Sickness has prevailed to an alarming extent; the winter was very severe: and disease seemed to take a more malignant type than common.

The lesson which the past year's experience would seem to teach, and the one practical point I wish to impress upon the profession by this report, is the necessity and practical benefit derived from frequent county society meetings, and the obligation we owe our profession and patrons to attend and take an interest in such meetings, where one may profit by the experiences of his fellows; and what more ennobling aim can there be in life than to live and work for the good of others?

W. H. JENNINGS, M.D.

Blossburg, Pa.

REPORT OF THE YORK COUNTY MEDICAL SOCIETY.

JUST how much good reports from county medical societies may do, we do not know; men have different tastes, and the physician is no exception to the rule, consequently it is hard to draw a line between that which may pass as interesting and valuable, and that which may be condemned as absurd and useless. Be all that as it may, we take this opportunity to express the opinion that where societies meet often there is a greater tendency to harmonize the profession, to elevate its tone, and to stimulate a desire to rise higher in medical knowledge. Physicians will take more pains in the preparation of medical essays, and be more guarded in their verbal discussions, when it is believed that the papers and discussions may appear in print, than they otherwise would do, if it was thought that with the close of the meeting, would end all the business transacted. There is no better evidence of the advancement in medical science than is noticed in the deep study and intelligence shown in the character of many of the papers and discussions found in the reports of the Transactions of the State Medical Society, and no one in the harness of the profession can be indifferent to the immense amount of good which is annually promulgated through the published Transactions.

Our Society still meets monthly in "The York Hospital and Dispensary building," where there are pleasant rooms and ample facilities for improvement in medical knowledge.

The meetings are well attended, and recently there has been an accession to membership of quite a respectable number of the younger members of the profession. The discussions on the papers read and questions stated are very interesting, and generally of a practical character.

Of the diseases most prevalent in this county during the past year, I would especially name measles, scarlatina, and diphtheria, the latter quite extensively in several districts, and the mortality was considerable.

Of the papers read before the Society, I note—

On "Diaphragmatic Pleurisy," by Dr. E. W. Meisenhelder.

On "When to Amputate in Senile Gangrene," by Dr. M. J. M'Kinnon.

On "Craniotomy," by Dr. G. P. Yost.

The above were ordered to be published in the Quarterly Transactions of the "Lancaster County Medical Society."

The others, and which are herewith forwarded for the examination of the standing revisory committee, are as follows:—

On "Pelvic Cellulitis," by Dr. Alfred A. Long.

On "Rapid Disappearance of an Exophthalmic Goitre," by Dr. G. P. Yost.

On "Leucocythæmia," by Dr. L. M. Lochman.

On "Ought a physician tell a patient that he will die?" by Dr. E. L. Melsheimer.

On "Our Duty," by Dr. William S. Roland.

On "What I can remember of Yacub Yunkle's Experience, etc.," by Dr. B. F. Spangler.

On "Hysterical Convulsions," by Dr. W. C. Stick.

On "Typhoid Fever," by Dr. J. R. Spangler.

On "Treatment of Acute Rheumatism," by Dr. G. W. Rebman.

Very respectfully, etc.,

WILLIAM S. ROLAND, M.D.

WEAK EYES IN THE PUBLIC SCHOOLS OF PHILADELPHIA.

THE REPORT OF THE COMMITTEE ON EXAMINATION OF THE EYES OF THE CHILDREN IN THE PUBLIC SCHOOLS OF PHILADELPHIA.

By S. D. RISLEY, A.M., M.D.,

CHAIRMAN OF COMMITTEE, LECTURER ON OPHTHALMOSCOPY IN THE UNIVERSITY OF PENNSYLVANIA, OPHTHALMIC AND AURAL SURGEON TO THE EPISCOPAL HOSPITAL OF PHILADELPHIA.

Mr. President and Gentlemen:—

On June 22, 1878, I was honored in the reception of the following letter from the Recording Secretary of the Philadelphia County Medical Society:—

"S. D. Risley, M.D.

"Dear Doctor: At the stated meeting of the Philadelphia County Medical Society, held June 18, 1878, you were appointed chairman of a committee under the following resolution:—

"Whereas, Good vision is of great importance in the career of every individual, its defects insuring more or less hindrance to success in life;

"And whereas, Many of these defects of sight, notably myopia, are caused or made progressive during school life, as is set forth by numerous investigators in other cities both in this country and in Europe;

"And whereas, It is believed that proper attention to the lighting, seating, hours of study, character of type in text-books, etc. etc., will do much to obviate defects of sight:

"*Therefore Resolved*, That the Philadelphia County Medical Society respectfully request the School Board of Philadelphia to extend every possible opportunity to a properly authorized member or members of the Society to examine the eyes of the children in

the public schools of Philadelphia, and to investigate all matters pertaining to their vision and the preservation of the same.

"The committee consists of five, as follows: yourself, chairman, A. Nebinger, L. Brewer Hall, A. G. Heyl, J. Collins.

"Very respectfully,

(Signed) "H. LEAMAN,

"*Recording Secretary.*"

Immediately on the receipt of this communication a meeting of the committee was called for consultation, resulting in the attendance of Drs. Hall and Collins, and a card from Dr. Heyl, declining to serve upon the committee.

A copy of the preamble and resolution was sent to the Board of Public Education for their consideration. The request conveyed in the resolution was freely granted, and the hearty support and co-operation of the Board assured. The proceedings of the Board were, as usual, published in the daily papers, and the great interest felt by the community in the work of your committee was at once manifested. The chairman of the committee was forthwith waited upon by numerous representatives from the various newspapers of the city. A long editorial notice of the nature and motive of the work proposed by the Society appeared in the *Philadelphia Press* of September 30, 1878, which closed with a request for the support and earnest co-operation of the teachers and parents. Many letters were received from private individuals, some of whom were the parents of children attending the public schools, tendering advice, making suggestions, or expressing gratification that so important a work had been undertaken. In this manner was indirectly expressed a deep anxiety regarding the vision of the school-children. Thus under favorable auspices the work was begun early in October, 1878.

At the request of Dr. Nebinger, the first examinations were undertaken at the George W. Nebinger Grammar School, in the southern section of the city. The directors' room was placed at the disposal of the committee, and everything possible done to facilitate their labor. It is appropriate that the thanks of the committee be tendered to Miss Bryan and Mr. Sharp for their kindness and courtesy in aiding your committee,—the former the Principal of the Girls' Grammar, the latter the Principal of the Boys' Grammar School, both of which meet in the same building.

The *personnel* of the committee, as it appears upon the minutes of the Society, has, during the progress of the work, been subjected to a number of changes. As already mentioned, Dr. Heyl did not accept the appointment upon the committee. It was understood

that the part of the work falling to Dr. Nebinger was to look after the interest of your committee in the Board of Public Education. Dr. Collins very soon found that the demands of his private practice made it impossible for him to aid regularly in the work of the committee; so that Dr. L. Brewer Hall and myself were left with a work of no little magnitude resting upon us. In order to further the work of the committee, it was desirable that more aid should be secured; and we were successful in securing the valuable assistance of Dr. James Wallace, one of the assistants in the Eye Dispensary of the University Hospital, Dr. Heilman, of the Philadelphia Dispensary, and Dr. Eskridge. The thanks of the committee are justly due and are hereby tendered to these gentlemen for their skilful aid and the untiring diligence which for two school years, three times each week, found them at their post of labor. During the third year Drs. Francis M. Perkins and Gordon M. Christine generously consented to assist in the work, Drs. Wallace, Heilman, and Eskridge finding it impossible to continue their labors with the committee. Finally, Mr. President, I am indebted to Dr. B. Alexander Randall, who has been almost my sole assistant in tabulating the extended observations and in the preparation of this report, a labor the magnitude of which has exceeded very far my anticipations as well as my strength, when added to numerous other cares.

In presenting this report, Mr. President, I beg leave to state that the most that can be claimed for it is a report of progress. In the first place, we have been able to study the eyes of a very few hundred children, while the field before us contained upward of 75,000.

The opinions herein expressed, although seemingly justified by the collated facts, are not to be regarded as final; since a still more extended observation might make it necessary to revise too hastily formed judgments. During the progress of the examinations it has been found necessary to relinquish opinions before entertained regarding many things in the educational methods pursued in the public schools of Philadelphia; yet it is believed that the opinions which have been formed should have some weight in the minds of the educators and those who direct their labors.

Having thus called attention briefly to the history of the formation and work of the committee, I ask your careful consideration of the motive of the work undertaken, and the important questions it was hoped the examination of the eyes of the school-children, during their educational process, might solve.

Motives for the Work.—Among the various problems involving the welfare of highly cultivated communities, the use and abuse of the eyes, or their proper care, is daily assuming, in the popular as well as the professional mind, a greater importance. In communities where the daily vocations are of such a nature as to demand comparatively little accurate use of the eyes, the necessity for extraordinary care is not felt. The farmer, and the artisan employed in the ruder mechanical pursuits, find no difficulty in following their employments, since no demand is made upon them for long-continued use of their eyes at a near point. The farmer follows his plow, drives his team, or wields his agricultural implements in broad daylight, under conditions requiring the smallest modicum of vision. Send his sons, however, to college or the counting-room to spend many hours of the twenty-four, in rooms illy or moderately lighted by day, and with imperfect illumination at night, conning Greek and Latin lexicons, or poring over cash book and ledger, under less favorable conditions for general bodily vigor; and the problem of sufficient or comfortable sight very soon obtrudes itself. The carpenter, who boasted of his good eyes when engaged in shingling the roof or weather-boarding the house, finds, when placed in the dimly lighted establishment of the cabinet-maker and joiner, constructing finely fitting tenon and mortise, that his eyes will not bear the protracted use at fine work in poor light. The student and the seamstress, the clergyman and the clerk, are constantly being driven from their pursuits of choice or necessity, to seek some sphere of labor demanding a less exacting use of the eyes. Indeed the demand of civilization for perfect eyesight, is daily forcing from her most cherished haunts into comparative obscurity, in mediocre positions, ability and talent capable of shining among the brightest and most favored of her votaries. Many a school-boy *idle* only at his books, *dull* only in the recitation room, is so because he finds the continued use of his eyes a painful task. Such boys are constantly driven, possibly without an uttered complaint, from books to ball and bat; forgetting in the tempting and exhilarating out-door sport, both the pain and the mortification over class failures.

Having in view the great importance of good vision to the student, it is justly a matter of surprise and condemnation that so little care has been manifested by parents and teachers. Indeed, they seem to have been in most cases quite unmindful of the condition of vision in the pupils they propose to educate. Our children are sent to school without even the most cursory inquiry as to whether their eyes are fitted to perform the important and arduous duty before

them in the long educational process; this, too, in the face of the fact that they are to be the most important agent in the acquisition of knowledge. The utmost attention is given to the teeth, lest through neglect they should decay; but the eyes are allowed to enter upon the important duties of school life without a thought of their welfare. Yet the importance of such supervision can hardly be overstated.

Perfect eyesight is not only necessary for the successful performance of the ordinary school duties, but has much to do in the formation of both the moral and physical characteristics of the individual. The boy who is constantly subjected to the painful eye-strain required to overcome an anomaly of refraction cannot, other things being equal, compete successfully with his more highly favored companions with normal eyes. Two courses only are open to him. He may by dint of perseverance and pain contend successfully for the prizes of school life; but he succeeds at the expense of injury to his eyes. On the other hand, finding the struggle a painful one, he retires from the unequal conflict, and is found, still a mere youth, contending for the rewards of life in mercantile or other pursuits. If compelled by parental authority to remain at school, the task, at best a difficult one, is either neglected or necessarily so imperfectly performed that it sooner or later becomes an impossible one. The class of which he is a member advances step by step from the rudiments to their application in the acquisition of real knowledge; but with each step he finds the difficulties thickening about him, since a knowledge of the rudiments is necessary to a proper understanding of what he is now expected to learn. Understanding these imperfectly, it soon becomes impossible for him to go on successfully; so he proceeds in a dazed way, deceiving his teacher and his parents, such deception being necessary to keep him from utter disgrace. The book is smuggled into the recitation-room and slyly consulted to make up for deficiencies in preparation; or, at best, the memory instead of the understanding is called into action. Conscious himself of the inferior and unworthy position he occupies, he loses that self-respect which is always the bulwark of an honorable man, and finally passes out into the world with only the semblance of an education, and with elements in his character which are in a measure the creation of his defective vision,—elements of character which shall ever afterwards prove a barrier to the highest success; for the best prizes fall only into the lap of the honorable citizen. It is true that this may be regarded as the picture of an extreme case: it is one, however, which is too frequently exemplified in our midst. In a minor degree the same principle is operative in

thousands of the children attending our public and private schools to-day.

If near-sighted, the effect over the character of the individual manifests itself even earlier in life, possibly in a less pernicious way so far as the moral character is concerned, but with a deleterious effect over the physical constitution, mental habits, and manners of the individual. The peculiarities of the near-sighted person are so marked that, if the defect has not been corrected early in life by optical means, the most casual observer recognizes him among his fellows. The proneness to sedentary pursuits, and the habit of abstraction and apparent disregard of friends and acquaintances in places of public resort, are facts noticed and condoned. That these characteristics of the myope depend upon his near-sight we need not go far to show. The near-sighted boy, *e. g.*, cannot fairly compete with his more fortunate fellows in the sports of the playground, since their requirements lie beyond the range of his vision. An attempt at cricket or base-ball must necessarily subject him to the ridicule of his companions, since, thrown even from his own hand, the ball soon leaves his range of clear vision and he is unable to judge of the accuracy of its flight. In returning, it comes within his limited area of distinct sight, if perceived at all, so suddenly that the most dexterous movements cannot compensate for the loss of time in perceiving its approach. Thus, in consequence of a physical defect, of the existence of which he may himself be entirely ignorant, he is driven from the campus by the ridicule or neglect of his fellows—a very natural result of his inaptitude. The invigorating out-of-door sports are one by one sacrificed to more sedentary pursuits. He reads constantly, not as a matter of duty or from a desire for knowledge, but because it is the only pastime left open to him. The habit grows upon him, and he reads apparently for the sake of reading, with no thought of the acquisition of knowledge. The constant reading gives no time for reflection or the proper comprehension and digestion of what is read. A condition of mental engorgement is thus brought about, which is as foreign as possible to a true educational process. Such a child is less troublesome than the wild and rollicking boy with his ball and bat and ruder manners, and so his sedentary habits come to be encouraged. He is regarded as studious, and too frequently as a prodigy of learning; so it constantly happens that his inordinate craving for books is fostered by his friends instead of condemned; the vain hope being entertained that in the future all this devouring shall prove the basis of brilliant literary accomplishment. He becomes retiring and diffident. Away from home amid strange surroundings the myope is

hesitating and cautious. He goes out into the world devoid of that practical skill which characterizes the successful man of affairs; for it must be remembered that his defect of sight is operative at all times, not only on the college campus, causing directly his inaptitude there, but playing an important rôle in all the details of life. As the partially deaf child with good vision depends for his understanding of conversation largely upon the facial expression and movements of the lips of the speaker, and loses the lower tones and least accentuated parts of the spoken sentence, and thereby learns to talk in broken angular sentences; so the near-sighted child learns to rely upon the tones of the voice, since the facial expression is not seen. He is more readily deceived, since he loses this great aid in the interpretation of individual character. He hears the bustle and noise of the busy world around him, but does not readily throw himself into the current of passing events. He hears the talk about the beautiful landscape, but it is all a blur to him. He thus, as a matter of compulsion, occupies a world of his own, constituted by his narrow range of vision and the ideals built up from his extended reading of books, without the possibility of comparing the descriptions of the author with the realities in nature, and within this limited world it is natural that he himself should be the most prominent factor.

If then these deductions are well drawn,—and we believe they are justified by daily observation—if not only the physical constition, but the mental habits and moral character of the individual may be subject to serious impairment and modification in consequence of defective eyesight; it becomes a matter of serious moment to every community to avoid, as far as may be, the occurrence of defects of vision, and, when present in the individual, to neutralize, if possible, the consequences of such defect.

These things, which are now pressing themselves upon our attention in this country, have long been sorely felt in the older civilizations. Extended observations have been made by many faithful observers, and important discussions had relating to the facts revealed and their causes. The salient feature which has attracted the attention and excited the interest of all these industrious men, was the prevalence of myopia; and their labor without exception has been directed to the discovery of its cause and pathological history. In 1876, according to Emmert, 52,471 persons had been examined by twenty-five observers with this object in view. To these are to be added Emmert's own statistics and the work of several Americans. As early as 1813 James Ware's statistics were published, embracing the examination of the eyes of 10,000 soldiers of the Foot-guards,

1300 pupils in the Chelsea military school, and 127 students at Oxford. He showed that myopia in England was more prevalent in the cities, and in the better classes of society. In the Guards he found that near-sightedness was scarcely known among the privates, and that not more than half a dozen recruits were said to have been rejected from this cause in the course of twenty years, while thirty-two of the 127 students at Oxford wore near-sighted glasses. Various observers have pointed out the evil consequences of insufficient illumination.

The more recent and better known labors of Drs. Cohn of Breslau, and Erismann of St. Petersburg, have served to corroborate many of the facts set forth by earlier observers, and to awaken wide-spread recognition of the importance of the problems involved. By these extended observations it was shown conclusively that the percentage of myopia steadily increased in passing from the lower to the higher classes, or what is the same thing, increased with the age of the pupils. Thus in St. Petersburg, Professor Erismann found in 4358 pupils, 13.6 per cent. of myopia in the primary, and 42.8 per cent. in the highest classes. In Germany the rise was from 11.1 to 62.1 per cent. The American statistics, already published, furnish a more favorable result than the above, but are, nevertheless, sufficient to excite the gravest foreboding, since commencing as they do at seven years of age with myopia of 3.55 per cent., the rise is to 26.79 per cent. at twenty years of age. Regarding the main truth set forth in the above statistics, viz., the steady rise in the percentage of myopia as the age advances, my own statistics agree. This was to have been anticipated from the uniform result reached by other observers, but if the labor of this committee was to do no more than verify that of others, it were a work of supererogation. Although this main fact had been repeatedly demonstrated, but little light had been thrown upon the essential cause or causes of the increase in myopia, or upon the history of the ocular changes. Based upon these statistics, important suggestions, it is true, had been made regarding the hygiene of vision; the proper relation of seats and desks, sufficient light, etc., were insisted upon as important; but further than this no practical results were reached. It was therefore desirable that this investigation should, if possible, reveal something of the real cause of the myopia. That the hygienic surroundings of the pupils were not solely at fault was rendered probable by the investigations of Just, who examined the eyes of 1229 of the pupils in the two high schools of Zittau; both of which had been erected since 1866, and in which the hygienic conditions were all that could be desired. He nevertheless did not find that the excellent arrangements had in any

degree lessened the percentage of increase in myopia. It was necessary, therefore,—the fact of the increase being established,—to look beyond the mere hours of study, the proper seating and the sufficient lighting of the school-room, since the most perfect arrangements in these respects had failed to arrest the increase.

In the various tabular statements embodying their observations the usual classification of eyes into emmetropic, hypermetropic, and myopic, was made, and the sole endeavor was to show the relative frequency of their occurrence at different ages, or, what is the same thing, in the different classes in the schools from the lowest to the highest. A careful study of Erismann's tables—and these are taken as representing in a general way the whole—showed that the emmetropia remained nearly stationary throughout all the classes. Hypermetropia, beginning in the primary classes with 70 per cent, sank to 35 per cent. in the highest class; while myopia, which began with 12 per cent. in the lower classes, mounted steadily as the higher classes were approached until, at 18 years of age, nearly 45 per cent. of the pupils were myopic. In the German statistics the showing was still more unfavorable, since in the university classes the myopia had reached the alarming degree of over 62 per cent. In the statistics compiled by Drs. Loring and Derby, of New York city, there was but 27 per cent. of myopia in the highest class. Another marked difference is shown in comparing their tables with those of European observers. All the foreign statistics except those of Conrad show, expressed in general terms, a low percentage of emmetropic eyes, and a high percentage of hypermetropia; but in the New York statistics emmetropia and hypermetropia have nearly changed places; a difference which is to me unaccountable, since my own differ so widely in this respect, while agreeing closely in all others. In our younger civilization a lower percentage of myopia was to have been anticipated, and while we have not been disappointed in this, nevertheless, as will be shown by the following statistics, we have but little over which to congratulate ourselves.

It was desirable then that the work should go beyond the mere study of the refraction of the eyes Numerous questions presented themselves for solution. In the *first* place, would our more youthful civilization yield different results from those reached in Europe? This was important, as tending to shed light upon the possible heredity of myopia. *Second*, did the increase of myopia in the higher classes come from the emmetropic eyes, while the emmetropic were recruited *pari passu* from the hypermetropic, *i. e.*, did the hypermetropic eyes pass through emmetropia to swell the percentage of myopia? This involved the question as to which is to be

considered the model or standard eye,—the emmetropic or hypermetropic. *Third*, what relation, if any, existed between our educational methods and the increasing percentage of near-sight, if this should be found to exist? That some definite relation of cause and effect should exist was to be expected, since myopia was found more frequently in cities and among those classes in society more given to pursuits demanding accurate sight. *Fourth*, if it were true, as was indeed claimed by many authorities, basing their opinions upon the European statistics, that the emmetropic eyes passed into the lengthened myopic ball, and the shallow hypermetropic ball lengthened into emmetropia, would a careful study of the *fundus oculi* reveal, in the emmetropic and hypermetropic eyes, the incipient pathological steps by which the journey was accomplished from the *too short* hypermetropic ball to the *too long* myopic ball with its well-known serious pathological conditions? *Fifth*, given the facts, 1st, that the percentage of myopia steadily increases during school life in this country as well as abroad; 2d, that this increase is accompanied by definite pathological conditions; and 3d, that there is a distinct relation between the school-life and these occurrences; to what extent are our educational methods and manner responsible?

The task set before your committee, Mr. President, was the search for a truthful reply to these important inquiries,—a search which for three years they have diligently pursued.

In order then to arrive at a satisfactory solution of these questions, a more extended and thorough examination of large numbers of the eyes of school children was demanded. The investigations heretofore made, it has already been shown, had served to demonstrate the steady rise in the percentage of myopia as the higher classes were approached, and thus fully justified the inference of an increase in the number of myopic eyes in the same class as it passed from the lowest to the highest grade; but such investigation could not give the pathological history of the change in form of the eyeball. This, however, was necessary in order to arrive at a perfect knowledge of the real cause and nature of myopia. This history could in fact be acquired only by patiently examining the eyes of a large number of the *same pupils* year after year, and carefully recording their condition as they passed from the primary classes into the succeeding higher grades. Now, such a task presented extraordinary difficulties, and was one, withal, liable to many disappointments; since, as we shall show, the pupils, in whose eyes the investigator would be most interested, are the very ones which—in this country, where education is not compulsory—are apt to drop out of the class, because of the pain and consequent inability to pursue their studies.

The same result, however, it was thought, might be reached approximately by a careful study in a large number of eyes of the refraction, and also of the attending conditions of health or disease as revealed by a careful ophthalmoscopic study of each individual.

That the myopic eye was generally also a diseased eye was a fact well understood, since it found demonstration in the daily experience of the ophthalmic surgeon. The collated statistics had shown not only a steady rise in the percentage of myopia, but a nearly proportional decrease in the number of hypermetropic eyes, while emmetropia remained nearly uniform. The question, therefore, very naturally arose as to *whence came the near-sighted eyes.* It was obvious that they were recruited from one or both of the other kinds of eyes; yet actual satisfactory observation of such change had been wanting up to a very recent date.[1] That such changes must and do take place was, however, inevitable, in view of the facts set forth by the statistics. Now, since myopia was attended with well-known pathological conditions, which without a doubt stood in the relation of cause, it was fair, reasoning *a priori*, to suppose that the conditions of disease which resulted in distension of the eyeball, or near-sight, would be manifested some time before the resulting distention. If this were true, a careful study of the condition of the *fundus oculi* in all states of refraction would furnish the strongest obtainable evidence of the source of the unhealthy myopic eye; that is to say, if it were shown by such examination that, next to myopia, emmetropia presented the greatest percentage of diseased eyes, and hypermetropic refraction least of all, it might with some show of reason be accepted as proof that the myopic eyes were recruited from the intermediate emmetropic eyes. Indeed, this might still be accepted as true if emmetropia and hypermetropia presented an *equal* percentage of disease. If, on the other hand, it should turn out that emmetropia was the condition of health, and that hypermetropia presented the highest percentage of disease, then the conclusion would be reached, not only that myopia was recruited from the eyes with hypermetropic refraction, but further that, despite the comparatively small number of actual emmetropes, emmetropia was nevertheless the condition of normal refraction, since it was the condition of health. Furthermore, the added conclusion would be inevitable that an eye with hypermetropic refraction was a defective eye, and that there must be a relation of cause and effect between this defect of refraction and the diseased *fundus oculi;* and hence that with such defective refraction in a large percentage of

[1] A Contribution to the Clinical History of Myopia, by S. D. Risley, M.D., Am. Journ. of the Med. Sci., Oct. 1880.

the eyes themselves, even a perfect system of instruction, with perfect arrangement of seating and desks, with sufficient light, ventilation, etc., would not avail in checking the progress of myopia.

It was with these views in mind that the work of this examination was undertaken; and in order to give the statistics a true value the utmost care was exercised throughout to avoid inaccuracy.

It is to be regretted that in some of the statistics heretofore compiled, the methods employed were inadequate to secure entirely trustworthy results, even in the determination of the true conditions of refraction present. If the vision for distance were normal, and convex glasses rejected, the eyes were passed as emmetropic. If vision still remained normal with a convex glass, or if the sharpness of sight were found diminished, but was improved by convex glasses, they were quite correctly placed as hypermetropic. If concave glasses were chosen, they were placed in the category of myopia. This test with glasses was regarded as quite sufficient. Now it is well known by ophthalmic surgeons that such a test is wholly inadequate in a very large number of cases. Many hypermetropes, especially among children and persons under twenty years of age, have not the slightest manifest hypermetropia, and will consequently reject convex glasses. Again hypermetropes and emmetropes, with insufficiency of the internal rectus muscles, will very frequently have diminished sharpness and will select concave glasses. This is true also in cases of hypermetropic astigmatism. The effort of accommodation in neutralizing the hypermetropic meridian forces the focus for those rays falling in the plane of the emmetropic meridian forward into the vitreous, thus giving a temporarily myopic meridian. Such persons will usually, indeed always, prefer concave glasses for distance. It is plain therefore, that with such a method, many hypermetropic or emmetropic eyes have passed for myopic, and a still larger number of hypermetropes were lost in emmetropia.

The method of examination which should secure the most complete record possible of the various facts to be ascertained by the investigation was a subject which received most careful preliminary study by your committee; and that adopted has seemed to satisfy the necessities of the case. Each child, on entering, received a printed form with blanks for the recording of all the important features of the case. To one member of the examining committee was assigned the duty of noting, in proper order, the name, age, sex, residence, color of eyes, hair, and complexion, the condition of general health, and the condition of the eyes. Under the latter headings were recorded whether the eyes were comfortable or weak

when used, the presence of blepharitis, conjunctivitis, corneal maculæ, or strabismus, and any other condition or fact bearing upon the special or general medical history of the case.

The pupil then carried the paper to a second examiner, who ascertained by the test types of Snellen and recorded the sharpness of vision of each eye separately. A third tested by means of Green's astigmatic cards at 20 feet as to the presence of astigmatism; and if lines were positively selected as seen better in one position than in any other, the fact and the position selected were noted for each eye, any uncertainty being indicated by an interrogation-point. A fourth then determined the near point and range of accommodation of each eye separately with No. 1 of Jaeger's test types, and examined as to insufficiency of the internal rectus muscles at 12 inches. To determine this, a 9°-prism was employed to give vertical diplopia, and then, if with Graefe's dot and line, or a modification of it by the substitution of a word of Jaeger No. 1 for the dot, there were distinct crossing of the images, insufficiency was noted as present. The central color perception was then tested at 20 feet by squares on the same scale as the type of Snellen, and the result recorded in the same manner as the sharpness of vision. The color sense was further tested in matching colored worsteds after the method of Holmgren, and any fallacy from ignorance of the names of the colors in the preceding test completely excluded.

With the paper upon which all these data had been recorded, the pupil then entered the dark room for the ophthalmoscopic examination, which was made by the chairman of your committee, aided by the facts previously ascertained. The refraction was determined with the ophthalmoscope with all possible care, and any error and its apparent extent recorded. Then the *fundus oculi* was studied in detail, and any departure, physiological or pathological, from the normal accurately described, and, where permitting of representation, sketched upon the paper. So carefully was this done that, in the subsequent study of the work, a glance at the sketches was often quite sufficient to bring up vividly to mind the entire ophthalmoscopic picture and other details of the case, which the name, etc., did not in the least recall.

As it was upon this ophthalmoscopic determination of the condition of refraction that most of the subsequent work hinged, it will be proper to state that all sources of error were excluded with the most painstaking care. The sharpness of vision and the range of accommodation previously recorded were carefully borne in mind, and used as checks to guard against mistake; and if there appeared to be the slightest inconsistency between them, care was redoubled

to find the source of variation. If the vision were normal, myopia was at once excluded, and every means was employed to remove any spasm of accommodation which might simulate it; and the examination prolonged until the apparent error had disappeared, often to give place to a distinct hypermetropia. In the examination emmetropia and health were always presupposed, and the contrary was recorded only when unmistakably present.

Many of the cases of uncomfortable and unhealthy *emmetropic* eyes in the accompanying tables were cases of this kind, which doubtless will account in part for the high percentage of disease in emmetropic eyes. The weakness of the internal rectus muscles is an important factor in the causation of weak eyes, and moreover, in many instances would account for any apparently anomalous relation between the distant vision, range of accommodation, and ophthalmoscopic examination; *e. g.*, with diminished distant vision and range of accommodation, the ophthalmoscope showing only a low degree of hypermetropia, the recorded high insufficiency of the interni at once made plain the reason for the apparent discrepancy. The ophthalmoscopic record by coming last not only served to check the results of the subjective examination, but in the light of the preceding record one was less liable to be led into error by the active accommodation of the patient.

The whole number of eyes examined by your committee is 2422, to which are to be added 174, examined in the same manner and recorded on the same blanks by Dr. Jackson, of West Chester, making in all 2596. The average time required and actually spent upon each case was twenty-eight minutes, and the record thus obtained was as complete and free from all sources of error as was possible from a single examination, unless a mydriatic were employed; and upon it I should not have hesitated to venture an opinion or prescribe treatment, had that been the object of the diagnosis.

The records thus obtained were arranged according to schools and classes, and copied into a book ruled and printed for the purpose; the original papers being carefully filed away. The individual results having been thus gotten into readily available form, the work of classification commenced; and it may here be stated, parenthetically, that not until the latter work approached completion had your committee more than the most vague idea of the ultimate showing of the investigation. The records were taken a class at a time, and the number of pupils, the number of eyes, and the average age ascertained for the class. The eyes were then classified according to their state of refraction—columns being arranged for

emmetropia, hypermetropia, hypermetropic astigmatism, myopia, myopic astigmatism, and mixed astigmatism; the number of each contained in the class being placed under the appropriate heading, and the percentage to the whole number of eyes in the class computed. Within each column were arranged headings under which to record the number of eyes of that condition of refraction that were comfortable at work, and how many uncomfortable; the number with normal, and with lowered vision; how many had healthy eye-grounds, how many unhealty; the number with conus, with central excavation, with anomalies of the ocular muscles; and the percentage to the whole number in the column represented by these carefully calculated. The results thus obtained were arranged in tabular form in the order of classes and schools, from the lowest grade to the highest; and the totals for the schools worked out, with the percentages as before. An example will make this clearer. In class B, section 4, Girls' Normal School, there were 74 pupils, with 147 eyes, and the average age was $17\frac{1}{2}$ years. Of these, 21, or 14.35 per cent., were emmetropic; 55, or 37.41 per cent., hypermetropic, etc. Of the 21 emmetropic eyes, 14, or 66.7 per cent., were comfortable at work; 7, or 33.3 per cent., uncomfortable; 20, or 95.2 per cent., had normal vision; 18, or 90 per cent., had healthy eye-grounds; and so on through the other groups. Another table which forms the last part of the accompanying table, was also prepared, dealing with the refraction alone; and in it the matter of astigmatism, important as it is, has been ignored, in order to give results comparable to those of other investigators, who have grouped under the head of myopia all eyes with myopic refraction, and as hypermetropia those with hypermetropic refraction, without regard to whether the error was simple or complicated with astigmatism.

To render more distinct and comprehensible the results thus obtained, the graphic method has been employed, and curves used to indicate the proportional rise and fall of the various conditions. Before entering upon a careful study of these curves, a brief explanation of the exact meaning of headings in the tables may be necessary to their full understanding.

If no complaint were made of discomfort attending or following the use of the eyes, they were noted as comfortable. On the other hand, if pupil complained of weak eyes, frontal pain following their use, frequently occurring styes, etc.,—if the eyes were irritable, the conjunctivæ injected, and the lid margins swollen and scaly—they were put down as asthenopic. If No. XX. of Snellen's test types could not be read at 20′, the vision was marked diminished in the tables. In the original papers the actual sharpness was recorded.

The columns for healthy and unhealthy eyes, refer to the condition of the *fundus oculi* only. Eyes were marked as healthy except when the ophthalmoscope revealed undoubted pathological conditions. In stating this, we are not unmindful that the line between physiological congestion and pathological irritation cannot be sharply drawn; but the difficulty here presented was readily obviated by a ruthless following of the rule laid down at the first, that all eyes were assumed to be healthy, and unless changes were present indubitably pathological, they were placed in the column for healthy fundus. In this way doubtless many eyes, which might, strictly considered, have passed for unhealthy, appear among the well eyes. It follows, therefore, that if there be error in the tables, it is on the side of health.

The term *conus* refers to certain choroidal changes in the region of the optic nerve. In the early history of these changes they present more or less accurately a crescentic form, and are usually situated on the outer or temple side of the optic nerve, the border of the nerve being embraced by the concavity of the crescent. Seen later in their history, usually in highly myopic eyes, they frequently assume the shape of a cone, the apex of which is pointed away from the nerve and ordinarily toward the *macula lutea*. They are in these highly near-sighted eyes also attended frequently with a bulging backward of the sclerotic, and have in consequence been called "posterior staphylomata."

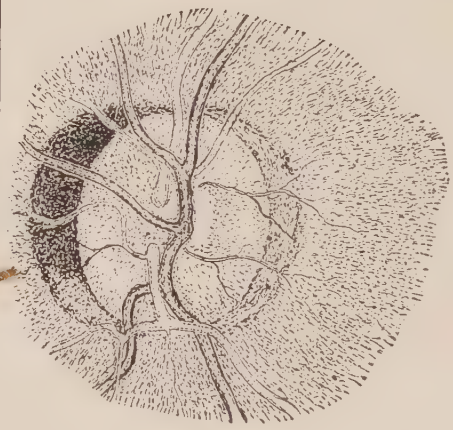
As seen in high degrees of myopia, and here they are usually present, the appearance is due to an atrophy of the choroid. According to Donders, there is a quite uniform relation between the extent of the atrophic cone on the one hand, and the degree of myopia and time of life on the other. My own study of myopia has, however, shown a wide variation in this respect, since in many instances of high myopia the atrophy has been quite absent, while in low degrees of myopia large atrophies have been repeatedly witnessed. They are, moreover, not confined to myopic eyes, since they are very frequently seen associated with hypermetropic refraction, as shown in the accompanying illustrations; and less frequently—in my experience rarely—in emmetropic eyes. The ophthalmoscope reveals an infinite variety of crescentic patches which may be regarded as transitions between the slight commencing crescent of choroiditis and the fully developed atrophic conus in the highly myopic eye, with the displaced nerve, thinned and yielding sclerotic coat, and the stretched atrophic choroid. It is often presented simply as a broadened scleral ring, the nerve border itself not being clearly definable; still more frequently, as a crescent situated entirely in the choroid. At times

No. I

No. II.

No. III.

No. IV.



No. V.

No. VII.

B. Hackwardall

this crescent is distinguishable from the surrounding choroid only by a yellowish-red color, lighter than the deep-red of the general fundus, which is usually injected and woolly; or the yellowish crescent may be more definitely outlined, being limited by a pigment line separating it from the choroid beyond. Again the crescent may be composed of pigment heaps or ridges with absorbing yellowish or whitish interspaces. They are usually situated at the temporal side of the nerve, but occur also, though far less frequently, below or to the inner side, rarely above, the nerve. As throwing light upon their true nature and import, it may be interesting to state here, that as seen in the daily routine of practice these crescents are found usually in astigmatic eyes which have broken down under work and come seeking relief from asthenopia. In addition to the changes in the immediate region of the optic nerve, the choroid presents evidences of disease or irritation extending not infrequently far forward toward the ciliary region. Grayish-black clouds are seen in the choroid, and often a honey-combed appearance, probably due to commencing absorption of the pigment of the retinal epithelium. The study, therefore, of the anatomical condition and its clinical history justify the statement that *conus is a limited choroiditis* (or its result) *of varying extent and intensity, affecting the region of the nerve-entrance, and generally manifested at the temporal margin of the optic disk, as a crescent of altered color and pigment-absorption.* The massing of pigment in the ring of choroid immediately surrounding the nerve is a phenomenon more often present than absent, and is occasionally most extraordinary in extent in the eyes of young children; and while this last fact does not exclude the possibility of pathological meaning, since marked conus has been seen in infants, it still strengthens the testimony drawn from general observations that this is one of the matters which may be set down as physiological. But when the pigment about the disk begins to absorb, we can no longer maintain such a view, since the attending symptoms and the clinical history as derived from individuals and from classes point emphatically to diseased action with a marked and more or less permanent anatomical lesion.

The accompanying plates are representations of eye-grounds illustrating the foregoing remarks as to the pathological changes. They are all of them portraits made with all possible care, and verified by repeated comparison with the eye-grounds depicted. Nos. I., II., III., and IV. are those of school-children; two of whom were actually members of the classes included in this examination, and were patients at the Eye Dispensary of the University at that time. Neither of them were seen with their classes, as they were withheld

from school; but the conditions present in their eyes were repeated, often in greater degree, in scores of their school-mates.

No. I. is the right eye of A. P. æt. 13, who was brought for advice on account of headaches, "weakness of eyes," and blepharospasm. At the first visit the following ophthalmoscopic record was made: "O. D. horizontal vessels slightly hypermetropic, vert. vess. +1 D; retina striated above and below disk; to nasal side a grayish double-ridged crescent, probably an absorbing pigment band; to outer side an irregular commencing conus. Choroid woolly throughout; nerve much too capillary." The other eye presented closely similar conditions: under a mydriatic the hypermetropia was proven to be $+\frac{1}{20}$.

No. II. represents the left eye of L. P. æt. 15. She came complaining of occasional headaches, and of frequently recurring styes during the preceding year. The record states: O. S. nerve horizontally ovoid; below and out a scleral ring broadens into a crescent of choroiditis with absorbing pigment. Upper nasal vein winds twice around corresponding artery upon the disk before passing to retina. There are alternating pigment clouds and yellowish-red areas throughout choroid, more marked in periphery. (The sketch given is not sufficiently extensive to show these.) Same general conditions in right eye. Under a mydriatic she selected for O. S. $+\frac{1}{24}{}^{s} \supset +\frac{1}{72}{}^{c}$ axis 90.°

No III. right eye of E. H. æt. 10. Child complained of burning of eyes, headaches in school, and occasional blurring of sight, dating back about six months. "Ophthalmoscope shows in O. D. a pigment line almost surrounding disk, and outside of it a crescent of absorbing choroid, extending from upper temporal to lower temporal artery. Nerve too capillary, with slight central excavation. O. S. same conditions. Eyes hypermetropic, with probably a low degree of astigmatism; retina striated, and choroid flannel-red in each." Under the prolonged use of a mydriatic, he selected for O. D. $+\frac{1}{36}{}^{s} \supset +\frac{1}{72}{}^{c}$ axis 75°.

No. IV. left eye of G. H. æt. 12, sister of the preceding. She was forced to leave school by trouble with her eyes. The ophthalmoscope showed the disk in O. S. vertically ovoid, with an absorbing pigment conus to outer side, and to the nasal side, a black crescent one-third the width of disk, beginning to absorb below. Nerve too red, with only trace of central excavation. Retina somewhat striated, and choroid granular; H. = 2 D. The father of these two children has M. As. and choroiditis; the mother H. As. and blepharospasm, often choreic.

No. V. is the left eye of F. E. I. æt. 30. Complains of burning, itching, and watering of eyes at near work; with occasional blurring

of vision. "Ophthalmoscope shows in O. S. retina hazy; nerve almost as red as choroid, with shallow, shelving, central excavation, which reaches to outer margin, and blends with the broadened scleral ring. Beyond this, especially below, is a crescent of yellowish choroid, outlined by a faint pigment line, in which the larger choroidal vessels have been uncovered by absorption of the pigment and the chorio-capillaries. Beyond this is another crescentic area of choroid as yet unchanged, but apparently marked out for destruction by a dark pigment line which incloses it. The choroid is everywhere woolly, and of a flannel-red color. Vert. vess. seen with + 0.5 D. Horiz. vess. apparently emmetropic." Under a mydriatic he selected for O. S. $+\frac{1}{60}^{c}$ ax. 90°. The right eye presented precisely similar conditions, except that the conus was more extensive, and the steps of its formation not so distinctly shown.

No. VI. right eye of Mrs. S. æt. 68. The record is: "O. D. a large, irregular and ill-defined atrophic conus embraces the outer half of nerve. Disk ovoid, with large shelving excavation, vessels from inner margin. H. = 1.5 D. Slight haze over details of fundus from lessened transparency of lens. Patient has for years worn for distance $+\frac{1}{24}^{s}$, $V=\frac{20}{xxv}$?" The other eye presented similar conditions. This is a striking example of the extent to which "posterior staphyloma" may form in a hypermetropic eye.

Many of the points given in the above notes, and strikingly shown in the colored sketches, are lost in these black-and-white reproductions; but it is believed that these will show much, and repay careful study.

The important relation existing between insufficiency of the internal rectus muscles and asthenopia has already been explained. To return then to the curves by the aid of which we hoped so to condense the results of our labor as to place them readily within grasp.

A little study of the classes included under the headings of the two lower schools at once convinced us that the divisions they formed were accidental. The classes were therefore arranged according to their recognized grade, as primary, secondary, and grammar, while the normal school, as a whole, formed the fourth grade. The totals and percentages of these, with the average age of the pupils of each, were then carefully worked out, and upon them the tables of curves have been based. Thus, in Table III. the horizontal lines represent the percentages, the vertical lines which they cross, the primary, secondary, grammar, and normal schools, in the order named; the average age of the pupils of each being given

below. In this as in many other parts of the report, the abbreviations Em. for emmetropia, H. for hypermetropia, and M. for myopia, have been used; and in other tables H. As. for hypermetropic, M. As. for myopic, and Mx. As. for mixed, astigmatism.

Turning to the table, then, we see that Em. was the condition of 7.01 per cent. in the primary school, of 11.74 per cent. in the secondary, of 11.14 per cent. in the grammar, and of 12.28 per cent. in the normal; a variation of slight amplitude, which shows that the proportion of emmetropia was practically the same in all the schools, but tends slightly upward. H., however, presents a different picture. Beginning with 88.11 per cent., it falls in the secondary school to 78.92 per cent.; remaining at nearly the same level in the grammar school, it sinks in the normal school to 66.84 per cent., a total fall of nearly 22 per cent.

Table I.

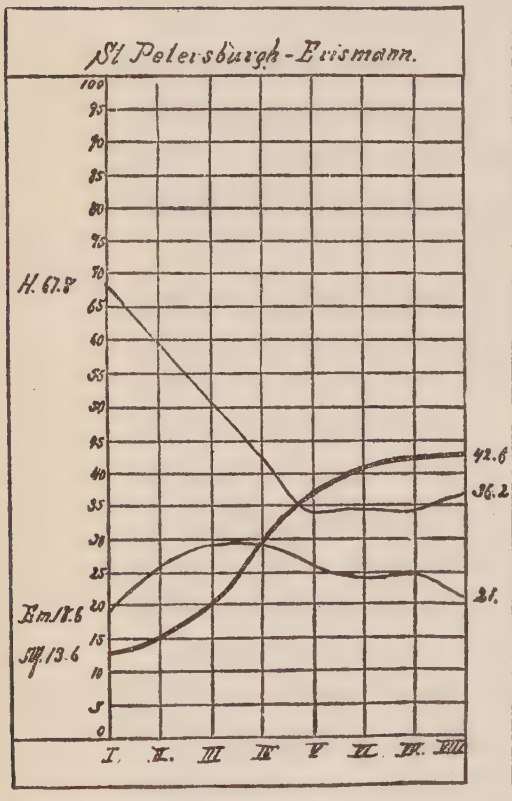


Table II.

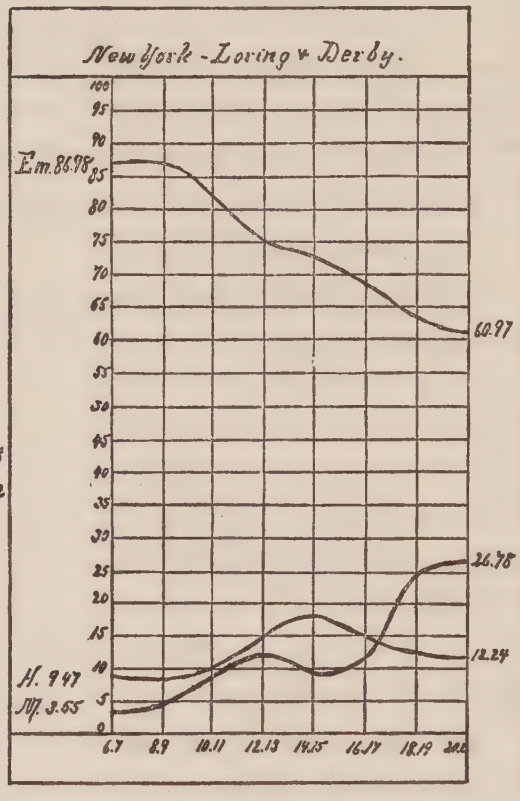
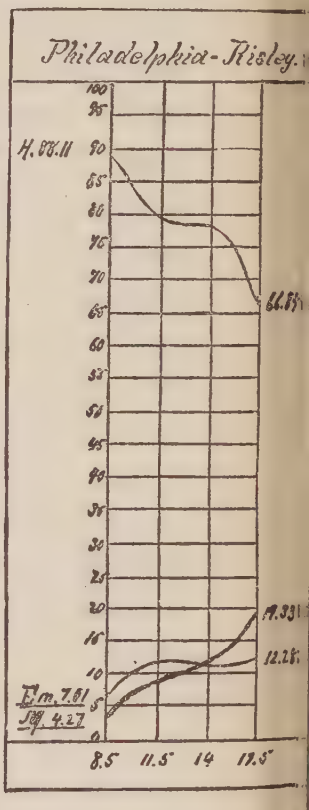


Table III.



It is this fall of the hypermetropia curve, together with the nearly corresponding rise of the myopia curve, which freights this investigation with such serious meaning. Regarding the increase in myopia thus depicted, all authorities have shown, and this report will probably make still further evident, that it means at least a permanently defective vision, with its attending discomforts and disadvantages, for the relief of which our best skill can afford only palliative measures. It will be noticed, then, that the myopia

curve, beginning with 4.27 per cent., mounts with an almost unvarying course through 9.03 per cent. and 11.45 per cent., to reach in the highest school 19.33 per cent., an increase of full 15 per cent. That this increase of myopia is not exceptional in its extent, similar investigations are unanimous in proving. The results of two such are represented for comparison in Tables I. and II. Compared with ours, the curve drawn by Loring and Derby to represent the increase of myopia which they found in the eyes of 1133 school-children in New York City, will be seen to closely agree. The smaller numbers in the divisions of classes of these gentlemen bring the higher and lower extremes into greater prominence, but leave more room for accidental variations; and their curve is distinctly less uniform. This does not, however, account for all the difference between the two showings; and even leaving out their last division, and comparing their seventh with our last, the average age in which is nearly the same, their proportion of myopia is seen to be full five per cent. higher. Another remarkable difference between the tables, and one which seems inexplicable, is that emmetropia and hypermetropia seem to have exactly changed places,—a phenomenon which has its parallel in the table of Conrad of Königsberg, but is at variance with the results of most observers. Between the curves of Erismann and ours the most distinct parallelism is evident; yet we can comfort ourselves with the observation that, injurious as our school-work is, and bad as is the outlook for the future of the eyes of our school-children, it is far better than in the Russian schools; while a comparison with the German tables would show even greater cause for congratulation. In the table of Conrad, already referred to, but not here given, the percentage of myopia in the University classes is seen to reach 62.10 per cent.;—*nearly two-thirds of the students are near-sighted.* Can we wonder that the spectacles seem almost an essential part of the physiognomy of the educated German? Nevertheless our table, like the results of all other observers, shows a nearly steady increase in the percentage of myopia during the educational process; and the evil, though not so great, is as real in America as in Europe, and its causes and the means of prevention as distinctly demand study.

But first let us gain a fuller understanding of the magnitude of the evil in its general bearings. To some persons the fact that near-sightedness is increasing may seem a matter of little moment. Objects have to be held nearer to the eyes, and a glass has to be employed to give any distinct distant vision; but, as an offset to these inconveniences, there is an idea quite prevalent that "near-sighted eyes are strong eyes," based on the fact that much later in

life than other people, if at all, do myopes require the aid of a reading-glass. A study of Tables IV. and V. will by no means bear out this view. In these tables the method of representation is the same, but the eyes of hypermetropic and of myopic refraction have been further divided according as they presented the error in its simple form or as astigmatism. A column has also been placed for mixed astigmatism, although the small number of cases of this form of error of refraction leaves too much room for accidental variations for its indications to be of any great value.

In Table IV. the upper curve indicates the proportional frequency of unhealthy conditions in eyes of the different states of refraction; and it may be well here to reiterate that in this category were included only distinct departures from health. They varied from retinal irritation, with congestion of the nerve, striation of the retina, and undue redness of the entire eye-ground, to marked neuro-retinitis, choroiditis, or posterior staphyloma. The percentage of these conditions in emmetropic eyes will be seen to have been 31.97 per cent.,—a frequency which is explained in part by the fact that the eyes in the lower school were subjected to less favorable hygienic surroundings, and, further, that the other eye of the same pupil was often of a different refraction, and to it could fairly be charged the diseased condition which affected both. Only 20 per cent. of the emmetropic eyes in the normal school presented these pathological eye-grounds; but even here the difference of refraction in the eyes of the same individual was present in a large number of cases, thus causing a higher percentage than if such difference had been eliminated. In hypermetropia the percentage passed 50 per cent.; in hypermetropic astigmatism, 76 per cent. Myopia presented disease in 82 per cent., and in myopic astigmatism 87 per cent. of the eyes were unhealthy. In the secondary classes there was not found a single myopic eye in which the fundus was healthy; and even in the normal school the diseased eye-grounds were present in nearly 82 per cent. of the myopic eyes. It would here be well to state that while some of the classes in the primary and secondary schools had bad hygienic surroundings,—and in the grammar schools the arrangements were not the best,—in the Normal School the greatest possible care had been given to the lighting and seating of the class-rooms, with the result of making them as nearly perfect as possible in the present state of our knowledge of the requirements. Yet, in spite of this and of the fact that the pupils were much older, and therefore, as we shall show, less susceptible to unfavorable circumstances, the showing for myopic eyes was almost as bad as in the lower schools.

Turning now to the conus curve a most interesting state of affairs is revealed in tracing its relation to the errors of refraction. The lower curve of Table IV. shows that this was found, often only in its incipient form, in 13.15 per cent. of the emmetropic eyes. In hypermetropia it was found in 20 per cent., and in the cases where astigmatism was combined with the hypermetropia it rose to 45 per cent. Myopia, with which many have claimed that conus was almost synonymous, presented it in but 41 per cent., distinctly less often than hypermetropic astigmatism; and only where myopia was itself complicated with astigmatism did the percentage of conus rise higher,—there, however, to reach 60 per cent. It is not our purpose here to enter on the discussion of the vexed question of its causation; but we may well call attention to the emphatic pointings of the curve which shows its relation to errors of refraction, especially astigmatism.

TABLE IV.

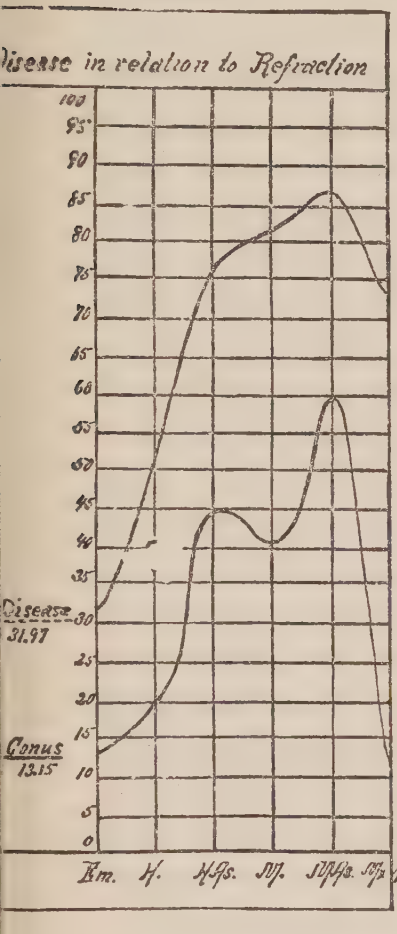


TABLE V.

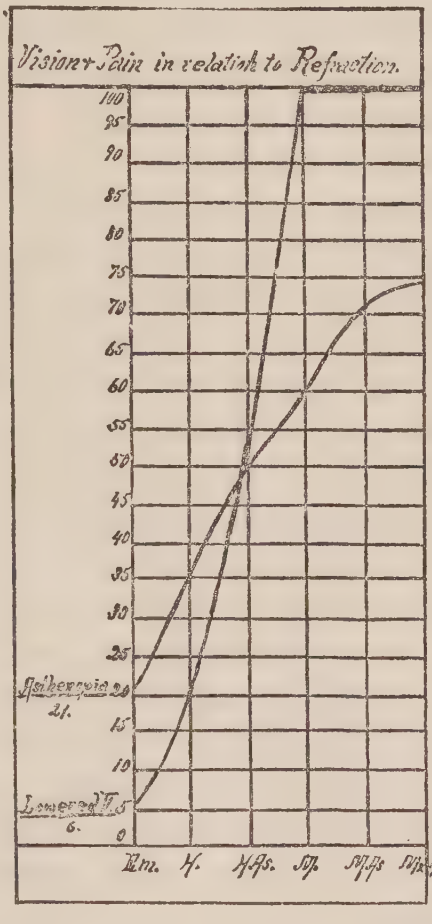
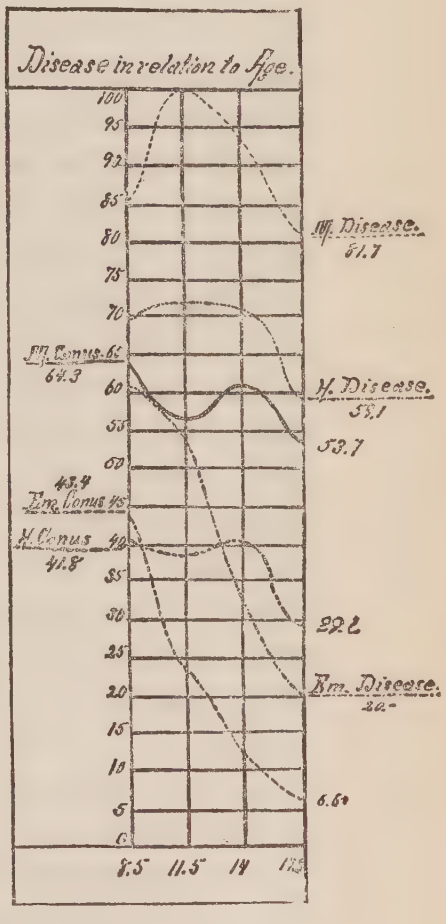


TABLE VI.



In Table V. another significant point is brought forward. One of the important facts recorded in the examination was whether the eyes of each pupil were comfortable when at work or asthenopic. In the latter category were included all the eyes which were painful after work, and also those which, though stated to be comfortable,

gave distinct external evidence to the contrary,—*e. g.*, in frequent styes, blepharitis, conjunctivitis and such affections. This latter check, which was used but sparingly, was rendered absolutely necessary by the utterly inconsistent statements of children. Experience shows that they are not prone to complain, even when it is most evident that they suffer discomfort. (In confirmation of this, reference is made to answers on the subject given by school-teachers in the Report of the Sanitary Committee. In the Geo. W. Nebinger Grammar School for Girls, the Principal reports, in 1875, "35 with weak eyes, 25 near-sighted," among 320 pupils. Among the 280 boys in the same building only six are reported as having defective vision. A comparison of this with the results of our examination about three years later, when the proportion of eye troubles was considered about the same, will show how greatly the extent of trouble had been under-estimated.) In working up the results of the examinations, hundreds of eyes claimed to be comfortable were found with conditions making it impossible to accept the statement as true; yet the trouble was "not proven," and the eyes were recorded as comfortable. The relation of this matter of discomfort to errors of refraction needs no comment. The steady and rapid rise of the curve to 72 per cent. in myopic astigmatism is sufficient evidence of the dependence. Defective vision, as indicated by the other curve, increases with a sweep that would startle us, if it were not a fact which familiarity has robbed of much of its weight. Yet it is worthy of note that there are few persons whose eyes are hypermetropic, even when a considerable degree of astigmatism is also present, who will not claim to have perfect vision. Only by an accurate test is the contrary made evident; and that, as the curve shows, only in a small percentage of the cases. The few who recognize the defect in vision almost invariably lay it to the charge of near-sight, and not infrequently seek aid from concave glasses.

Table VI. shows some points that were a genuine surprise to your committee, and, so far as we know, have never before been brought up. Here the percentages of disease in general, and of conus, are depicted in relation to age or class; and the remarks previously made regarding the hygienic surroundings of the various classes should be borne in mind, as well as the matter of the decreasing susceptibility, as age advances, to injury from such environment. Thus we see that in the primary school the emmetropic eyes (a small number, however, in all) presented conus in 43.4 per cent., and diseased conditions in 60.8 per cent. The hypermetropic eyes had conus in 41.8 per cent. and disease in 69.5 per cent., while in 64.3 per cent. of the myopic eyes conus was present, and disease

in 85.7 per cent. It is no wonder that it was with the most serious foreboding that we looked forward, when at the beginning of our work among the youngest children we found such a condition of affairs. The results obtained in the higher schools serve to lessen in some measure this impression, but it is a sad thought which arises when we look back and speculate as to the subsequent history of the individuals forming those primary classes. In the secondary school conus had fallen to 23 per cent. and disease to 53 per cent. among the emmetropic eyes; in the hypermetropic the variation was slight, while among the myopic, though conus had declined to 56.6 per cent., disease had gone up to 100 per cent.: there was not one of them healthy. In the two upper schools diseased conditions steadily declined, except conus among the hypermetropes and myopes, which rose in the grammar school to fall still lower in the Normal. In the Normal School, where the educational process was at or near its completion, the showing was far more favorable. Of the emmetropic eyes, only 20 per cent. were diseased, and only 6.6 per cent. of these had conus. Of the hypermetropic eyes, 59.1 per cent. were diseased, with conus in 29.6 per cent.; while among the myopic eyes 81.7 per cent. were diseased, with conus in 53.7 per cent.: a showing which is an improvement, indeed, upon the preceding classes, but none the less sad for a model school.

The point exciting surprise, and perhaps forming a check to any congratulation over the preceding matter, needs to be touched upon. In Table IV. disease and conus have been shown to be most frequent among eyes of myopic refraction, and in Table III. myopic refraction has been demonstrated to increase as we pass from the lower to the higher schools; and yet the tendency of all the disease and conus curves is downward,—*i. e.*, upward as we pass from emmetropia, through the various defects of refraction, to myopic astigmatism; but even in eyes with these latter defects present, the curves tend downward as the age and class advance. That this should be the case among emmetropic eyes was to be expected, and even among the hypermetropic was readily explicable; but that it should be found among the myopic, lacks as yet any thoroughly satisfactory explanation. There are, however, a few circumstances which go far towards explaining this unexpected result. In the first place, the pupils in the Normal School were far more favorably situated than were those in the grammar school, and half of the pupils in the secondary school were in the same building and with much the same surroundings as the children in the grammar school. (The other half, however, were in the Normal School building, and they, with the primary school, constituted the "School of Practice" of

the Girls' Normal School.) The arrangements in the Normal School are seemingly perfect. The quantity and direction of the light leave nothing in this respect to be desired; while the seating, placing of blackboards, and so forth, have been wisely done. The classes are not confined to any one room during the school-hours, but pass from one to another through broad and airy corridors for the successive recitations. Very little, if any study, however, is done in the school-building, the lessons being prepared at home; a fact to be commented upon later. (The pupils of the Normal School are admitted from the various grammar schools throughout the city, the terms of admission being a certain class standing, which is the basis of promotion. Not infrequently the pupils, when asked about the condition of their eyes, remarked that they had suffered greatly while in the grammar school, but had been more comfortable in the Normal School,—a distinct testimony to the favorable hygienic surroundings of the latter, since there was little if anything in the requirements of the course of study to make the difference.)

The children in the School of Practice, ranging from five and a half to twelve years of age, were, with the exception of two classes, quite as favorably placed as the pupils in the Normal School, so far as the seating, lighting, etc., were concerned; they, however, occupied the same room continuously throughout the daily sessions of the school—from 9 to 1 o'clock. These two classes, however, were very unfavorably situated. Owing either to the crowded condition of the building or to the necessities of classification, partitions about seven feet high, composed in part of ground glass, had been in two cases erected across a room. In the additional rooms thus secured there were no windows, sole dependence for illumination being placed upon the diffused light reflected from the walls and ceilings. At a desk in one of these rooms, on a bright, clear midday, it was found extremely difficult to read Jæger No. 1, in consequence of the imperfect illumination; yet in these rooms the classes occupying them not only recited but prepared many of their lessons, and this during a term of five months. The results of this arrangement on the eyes of the pupils were only too plainly revealed by the ophthalmoscopic examination. A large number of these little children were suffering from headache. They had congestion of the conjunctiva, and red and scaly lid-margins, while very many of them when asked if their eyes were troublesome replied, "They water when I study." The ophthalmoscope showed in most cases choroido-retinal irritation, and in not a few instances actual inflammation. It was here that was most frequently observed the commencement of those choroidal changes already described as

occurring in the region of the optic disk. Many of the eyes were unduly sensitive to the light of the ophthalmoscopic mirror, and even during the preliminary examination would flush up and manifest their irritability by excessive lachrymation. These conditions, though worse in the two classes above referred to, were by no means confined to them; but this nevertheless accounts in part for the high percentage of disease in the primary classes. The irritable, overworked condition of a large percentage of the eyes of these young children could not but awaken the gravest apprehensions. That these two, badly situated classes, did not show a percentage of disease very much in excess of the others, is explained by the fact that many of the other classes had already occupied these same dimly-lighted rooms, having in the course of promotion passed through them. The better condition of the eyes in the secondary school furthermore suggests very forcibly the probability that many of the children with bad eyes in the primary classes, had dropped out in consequence of their eye-trouble—a process which may be continuous through all the classes. Not a few instances of this have come to my notice incidentally, and any systematic inquiry would doubtless have shown a wide application of this probable rule.

These facts, then, possibly furnish in part at least the needed explanation for the downward trend of the curves in Table VI. One fact, however, has not yet been dwelt upon with the urgency its importance demands. Allusion is made to the bad condition of the eyes in the primary classes. Although the myopia curve is here at the bottom of the scale, the disease curves at eight and a half years of age are all high, even in emmetropic eyes. The lesson it is desired to impress just here is that in the eyes of these young children was being laid the foundation, in intraocular disease, for a future myopia. Protected at all other points by the watchful care of parents, they had nevertheless been subjected to the duties and cares of their early school life without a thought regarding their eyes, without the most cursory inquiry being made, except in rare cases, as to whether the eyes were fitted to perform safely their important function.

Although the limits for publication by the Society have been already exceeded, reference must be made to one other fact, since it suggests an important practical point in the architecture of school-houses. The two senior classes in the grammar school were seated in large, airy, well-lighted rooms, with every necessary appliance; but the desks were so arranged that the pupils sat facing directly three large western windows. Almost without exception these pupils were found with retinal irritation, and complaining bitterly

of the source of light in the school-room. The fact that facing the light during work is a source of harm to the eye is one very generally recognized by the laity, and more than one letter found its way to the chairman of your committee, insisting upon its importance as the source of weak eyes.

This is a matter the importance of which has been so frequently dwelt upon that it was just matter for surprise that a single instance should be found where this defective relation between the lighting and seating had not been corrected. In 1875 an extensive and elaborate report, already referred to, was made to the Board of Public Education by a committee appointed to inquire into the sanitary condition of the schools of Philadelphia. In this report the committee insisted that the light must come from the side or rear of the pupils, and that the blackboards, charts, etc., should be placed upon the walls opposite and not between the windows, as was the case in many instances. That the committee were thoroughly justified in their urgency on this point finds demonstration in the bad condition of the eyes in the two classes alluded to above. In answer to the question "How many scholars are known to you and other teachers who have weak or sore eyes or near-sight or other defect of vision?" Miss Ella Coates, Principal of the Rovondt Primary School No. 4, reports "Two in 2d Division, one-third in 1st Division;" and adds "You will notice that at present in the 2d Division only two pupils' eyes are as yet affected; by the time that class is ready for promotion, as much as one-third of the whole number will be so suffering from weakness of vision as to occasion considerable manœuvring on my part to seat them in such positions as will enable them to copy from the blackboard."

It is not within the intention or scope of this report to enter upon a careful study of the general hygienic surroundings of the pupils, nevertheless some matters of supreme importance press themselves forward with such urgency as to demand at least brief notice. The influence of the European investigations regarding the proper relation between seats and desks, sufficient light, etc., has had its due weight, as evidenced in the report already mentioned, where very much is said regarding the adaptation of the height of seat and desk to the size of the pupil. It is hoped also by this allusion to that report to call attention once more to the valuable suggestions there made regarding the ventilation of the school buildings; and the importance of the time devoted to recess. Mr. E. Thompson, in his report regarding the condition of the atmosphere in the school-rooms, says (p. 16), "No case was found in which the most moderate ventilation could have been secured without the use of the

windows." When it is considered that in this statement were included not only the older, more illy-constructed school-houses, but also buildings constructed as late as 1872; it will be seen that there is great room for improvement in the architectural designs of our school buildings. Dr. Andrew Nebinger, a member of the Board of Education, and also of the Sanitary Committee, in commenting upon Mr. Thompson's report to the Committee, uses the following language: "The other two school buildings . . . which are known as new school-houees, one built in 1868, the other in 1872, are as complete and well constructed as regards their ventilating appliances, as any of the public school-houses of the city; yet, Mr. Thompson's report exhibits that the ventilation of the rooms of these buildings is but little, if any, more satisfactory than the condition of the class-rooms of the Wharton buildings, where the powers of the ventilating apparatus may be expressed by a cipher." Some recent investigations made by Dr. Tuckerman, of Cleveland, Ohio, into the health of the pupils of the schools of that city, during the school term and during the summer vacation, have shown that the trend of the curves, by which he has graphically delineated his results, is steadily downwards during the school term, and once more upward during vacation and after the termination of school life. Such a result is not surprising if better ventilation is not secured in Cleveland than is indicated in the above report on the Philadelphia school-houses. Of course these bad hygienic conditions react injuriously on all the organs; and eyes already defective, which might bear well the strain of the educational process under conditions which favor a vigorous general health, break down under the general *malaise* resulting from breathing, many hours daily, a vitiated atmosphere. The Sanitary Committee in the general introduction to their report, take occasion also to urge upon the teachers the importance of the recess provided for by a law of the school board. They refer to the great advantage from the half hour of rest from mental strain in the "abandon of the recess."

The importance of this to the eyes of the children cannot be overstated. The danger of injury to the eyes from school life is greatly enhanced by long-continued near work, as in reading, writing, looking over maps, and drawing.

During such exercises the eye becomes congested, as do all of the organs of the body during the performance of their physiological functions. This congestion subsides during the relaxation from work, especially during sleep, and the organ is once more prepared to perform its function. The eye is no exception to this physiolo-

gical law, and our educators should always have this in mind in arranging the curriculum of study. It should be remembered that we do not strain our eyes in looking at distant objects, but at those near at hand, and the nearer the object the greater is the strain upon the focussing power in order to see distinctly. Distant vision is generally the condition of *rest* for the eyes. Periods of near work should therefore be separated by intervals of rest or at least of work where distant vision only is required. It is very important that this principle be borne in mind in arranging the employment and studies of the children during each daily session of the school. Since eye strain is increased by near work, it is evident that this should be avoided, and, as far as possible, the desired instruction imparted by charts, blackboards, and lectures. It is believed by the chairman of your committee that this method of instruction by lectures, so largely employed in our Universities and professional schools, is also the true method for the instruction of children, and would go very far toward preventing the eye troubles found at present in our public schools, since, under these conditions, the strain upon the eyes is placed at the minimum.

A matter which seems to have been entirely neglected by the Committee on the sanitary condition of the schools, is the matter of *type in the text-books.* Any one may readily demonstrate to himself the advantage of large, clear print on a good quality of paper, by comparing, in a slightly insufficient light, an editorial column in our newspapers with their advertising columns. My observation leads me to believe that for the most part the text-books are well printed on moderately good paper: there are exceptions, however.

No book should be accepted for use in the public schools if printed on poor paper, however large the type may be; and one on good paper, if printed with type smaller than Long Primer or Small Pica, should without hesitation be rejected.

The facts discovered and pointed out in this report should not in the least deter from a careful attention to all these matters of the hygiene of vision, *e. g.*, sufficient light and proper arrangement of desks and seats, size of print in text-books, etc. Although it is shown by the investigation that the main source of weak eyes is pre-existing defects in the eyes themselves; and that, under the most perfect system of education, there would nevertheless be a large percentage of eyes unable to perform the necessary demands without artificial aid; it only serves to demonstrate the necessity for greater care, and for a system of instruction which shall, as far as possible, remove the necessity for continued use of the eyes at a near point.

We cannot refrain, however, from calling attention to still another feature in our educational methods. Unfortunately the school-life of the children is not confined to the school-houses. The greater part of the time at the school building is passed in certain general exercises, in writing, drawing, singing, and the recitation of lessons studied at home between the sessions of the school. The chairman of your committee had ample opportunity during the months and years occupied in collecting the materials of this paper, to draw from numerous pupils a picture of the daily routine of their lives. The morning session of the school begins at 9 A. M. In many instances this involves the necessity of leaving home at 8.30. The session continues until 12 M., and home is reached at 12.30. The afternoon session begins at 2 and closes at 4.30, home being reached at 5 P. M. The above details were noted from the statement of a mother, whose visit at the office with her little daughter 12 years of age interrupted the writing of this page. The child was suffering with progressive myopia and the invariably attending choroiditis. She was a frail child and "last spring had to be taken from school because of ill health." And what wonder! It would seem that the above details were sufficient to account for it.

A frail child at 12 years of age, who ought to have had no care resting upon her young head save those incident to her child life, is instead in a grammar school, to reach which she has had five to six years of anxiety, care, and mental worry. Leaving home at 8.30 in the morning she has had nothing but the care of her school on her mind until five o'clock in the afternoon. This it would seem were sufficient to account for the fact stated by the mother that "she was not a strong child:" but the daily routine is not yet over, for her journey homeward has been impeded by a load of books, and the mental elasticity natural to the child is not even now allowed its full play; since the fact is present in the memory that each of the books under her arm contains a lesson, which before she sleeps, must be learned for the morrow's recitation. The number of these lessons is never less than three, and usually five; from two to three hours being required to master them.

The mother, with an evident feeling of pride, spoke of the child's ambition to excel, and of her readiness to learn her lessons, but was afraid she did not retain them as she should. When it was suggested that she had better remain from school for a year, consternation was at once depicted on the faces of both mother and child, because such a course would interrupt the process of promotion, the fear of which was a goad, ever present, urging her on to renewed exertion.

Thus, it is seen, that this child was actually engaged in active school work each day for ten hours What wonder is it that she had progressive myopia and choroiditis, and that she was not a "strong child." This is by no means an isolated case, as will be borne out by the testimony of thousands of families in this city when once attention is called to it. Education is, it is true, one of the necessities of our civilization; but our ambition to make our children prodigies of learning before they have had time to grow out of the tender tissues of infancy, is rapidly making it a "necessary evil." If the earliest age at which children could be admitted to our public schools were placed at eight or even ten years instead of at six, as at present, it is believed there would be a great gain in the physical well-being of the children of the on-coming generation; and no loss, but a probable gain also, in the achievements of their school life. While it is beyond the scope of this report to discuss this suggestion in all its bearings, its importance, as far as the well-being of the eyes is concerned, finds ample demonstration in the downward trend of the curves in Table VI. It is there conclusively shown, that in all states of refraction the percentage of disease was higher in the primary and secondary schools than in the grammar and high schools. While, as has already been pointed out, a part of this may be accounted for by the weak-eyed children being forced to leave school by their inability to pursue their studies, nevertheless, it is unquestionably true that the tender, readily yielding eye tissues of early childhood have not been equal to the imposed tasks of school life.

It is, however, true that a large number of pupils pass safely through the tutelage of our public schools, enjoying to the full the great blessings and advantages they hold out to all. Notwithstanding this, it is desirable that a curriculum of study more elastic than the one pursued should be devised, which would permit the attendance of children without the necessity of pursuing all the studies demanded of the class to which they may chance to belong. At present it is often a test of physical endurance which only the physically fittest survive. It often happens that children with weak eyes are seen, who would be able to pursue, without injury, one or more studies, but are utterly unable to keep pace with their class in all that is demanded.

It is possible that some system of certified proficiency in certain branches might be adopted which, in children with tender eyes or feeble health, would allow a steady promotion or advancement, but permit a lengthening of the time of school-life without remaining in the same room or class two years in succession. I have many

times, in professional life, realized the necessity for some such arrangement. When the necessity has presented itself of interrupting the child's studies because of the bad condition of the eyes, the advice to quit books has always been met with a protest by the parents, and frequently by pouting or tears on the part of the child. The reason invariably given was that they would get behind their class, or would fail of promotion at the end of the term. This would, in a measure, be obviated by adopting the system of promotion suggested above. In this connection it is but just to call attention to the wise remarks made by Miss Maxwell, Principal of the Ringold Girls' Grammar School, in 1875, in the Report of the Sanitary Committee already cited, with reference to the importance of recess and a system of gymnastics, and deprecating "the system of cramming" the children, which she insists is demanded by the parents. Her cogent remarks would be introduced here but for want of space.

There are numerous other suggestions, which should find place here did space permit, regarding the methods pursued in our public schools; but they must be reserved for more extended treatment elsewhere.

By no means, however, is the subject exhausted by the study of the eyes themselves, and by the discussion of the system of instruction in our schools. In conversation with many pupils who chanced to be suffering even beyond the average of those with bad eyes, they were free to confess that, after their lessons had been learned, —*i. e.*, those lessons they were required to prepare at their homes, —many hours, often extending far into the night, had been spent in reading. Of course the schools must not be held responsible for this evil, and a wide-spread evil it is, in this country. The ready access to public libraries, the cheap editions of works of fiction, and the great prevalence of Sunday-school libraries, etc., place a most fascinating form of literature in the reach of every one. It consequently happens that in the great majority of city homes, the younger members of the family may be seen, during the long winter evenings especially, poring, hour after hour, over books. To add to the danger from this protracted strain upon the accommodation, the book is quite likely to be held in the lap, and the trunk and head bent forward over it; while a seat in some part of the room remote from the light is quite as liable to be chosen as a more favorable one. While these things are permitted at home, it is, of course, not just to accuse our school system of the resulting evil. There is one of their methods, however, justly open to blame,—viz., the custom of giving tasks in the school-room which must be accom-

plished at home, often at the sacrifice of several hours of time which should be spent in out-of-door sports.

When viewed from the stand-point of the physical well-being of the rising generation, the five or six hours devoted daily for ten or fifteen years to the regular sessions of the school, would seem quite sufficient time to accomplish the end designed in our public schools. That our school system with its vast army of industrious, efficient, and noble teachers, is laying broad and deep the foundations of future national greatness, none can deny. It is equally true, however, that in so far as the educational process saps the physical vigor of those committed to its care; just so far does it modify and detract from the symmetry and effectiveness of its work

Among the questions of greatest interest which at the outset of this investigation presented themselves were:—

First. Would our more youthful civilization yield different results, regarding the percentage of increase in myopia, from those reached by European observers?—This was important as tending to shed light upon the possible heredity of myopia. This latter could be fully answered only by a careful study of the family history of a large number of myopes. My statistics and the records of private practice have placed this within reach, but time has not permitted its development. The question as stated has received a decisive answer.

Second. Myopia having been found to increase during school-life, *did the increase come from the emmetropic eyes, while they were recruited* pari passu *from the hypermetropic?* i. e., *did the eyes with hypermetropic refraction pass through emmetropia to swell the percentage of myopia?* This involved the question as to which is to be considered the model eyeball.

Third. What relation, if any, existed between our educational process and the increasing percentage of near-sight, and to what extent were imperfections in our school-system responsible for the increase?

These questions, and many of secondary importance involved in them, have received answers in the preceding discussion, which are again summarized in the following conclusions, which we believe to be fully justified by the preceding facts.

First. That the emmetropic eye is the model or standard eye,—since emmetropia was shown not only to remain nearly constant in percentage throughout the school-life, but that it was also the condition of health, and withal enjoyed the highest acuity of vision and the greatest freedom from pain.

Second. That myopia, or near-sight, commencing in the primary

classes with a low percentage (4.27 per cent.), steadily increases as the pupils pass to the highest grade in our public school system; that the percentage of increase is very much lower in the schools of Philadelphia than in the schools of Europe; that the myopic eye presents a higher percentage of disease than eyes with emmetropic or hypermetropic refraction; that even in *myopic* eyes the percentage of disease is much higher when astigmatism is also present.

Third. That hypermetropic eyes are more numerous than both myopic and emmetropic combined; that, next to myopic astigmatism, distinct lesions are most prevalent in eyes with hypermetropic astigmatism; that the increase in myopia is from eyes with already existing anomalies of refraction,—usually hypermetropic astigmatism,—since it was shown that in hypermetropic, next to myopic astigmatism, was exhibited the highest percentage of disease, which also manifested itself in pathological changes similar to, or identical with, those usually regarded as characteristic of myopia.

—This conclusion is strengthened by the fact that such change has taken place under direct observation. It is by no means necessary that the distending eyeball should first pass through emmetropia. In several instances I have had the opportunity of witnessing the gradual change from hypermetropic astigmatism to myopic astigmatism, the meridian of greatest curvature being maintained. Four of these cases were published in the *American Journal of the Medical Sciences*, October, 1880. In one of these published cases a high degree of simple hypermetropic astigmatism passed through mixed to simple myopic astigmatism. Since the date of publication, the left eye has continued to distend, until at the present writing it presents compound myopic astigmatism.—

Fourth. That, while there is an evident and close relation between the increase of myopia and the school-life, nevertheless, having the preceding conclusions in view, *the educational methods are responsible to only a limited degree.*

—This conclusion is supported by the fact so strongly demonstrated in this report, namely, the very obvious relation between the errors of refraction and the diseased conditions of the *fundus oculi*, which shows beyond dispute that the fault is not, primarily, in the system of education, however faulty this may be in many respects, but depends upon the defects which existed in the eye itself at the beginning of the school-life. The conclusion, therefore, may be formulated as follows:—

That, *given an emmetropic or normal eye, the probabilities are that no harm will come to it from the educational process.* On the other hand, *given an eye with an anomaly of refraction, especially*

astigmatism, the probabilities are, other things being equal, that the educational process will be fraught with pain and danger to the eye.

Therefore, that before entering school the possible presence of defective vision should be excluded, and any existing error of refraction corrected as soon as any trouble is experienced.

Fifth. That the probability of harm resulting from the school-life diminishes with every added year of age, in all states of refraction. —This conclusion finds strong support in the condition of even the emmetropic eyes in the primary schools, as compared with those in the higher classes, as is graphically set forth in Table VI.—

Therefore, that our children are placed at school at too tender an age.

Sixth. That, in view of the facts herein set forth, the great importance of proper hygienic surroundings and a wisely chosen and arranged curriculum of study is more than ever manifest.

In arranging the course of study, the principle to be kept in mind is the avoidance of *protracted* use of the eyes at *a near point*,—*e. g.*, in reading, writing, or drawing.

1630 Walnut Street, Philadelphia, July 12, 1881.

| SCHOOL AND CLASS. | | | | EMMETROPIA. | | | | | | | | | HYPERMETROPIA. | | | | | | | | | | HYPERMETROPIC ASTIGMATISM. | | | | | | | | | | MYOPIA. | | | | | | | | | | MYOPIC ASTIGMATISM. | | | | | | | | | | MIXED ASTIGMATISM. | | | | | | | | | | REFRACTION SUMMARY. | | | | |
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REPORT TO THE PHILADELPHIA COUNTY MEDICAL SOCIETY FROM THE COMMITTEE OF METEOROLOGY AND EPIDEMICS, FOR THE YEAR 1880.

The meteorological characteristics of the year 1880 may be briefly summarized in the statements that the average temperature was more than three degrees higher than that of the preceding twenty-nine years; and that the relative increase in the amount of heat recorded in Philadelphia was chiefly noticeable in the early half of the twelvemonth.

During January and February the weather was unusually mild, the lowest point marked by the thermometer being $17\frac{1}{2}^{\circ}$. Snow or rain fell on only ten days in each month, producing an amount of relative humidity in the air smaller than usual. The barometric pressure was decidedly greater than that of the corresponding period in 1879.

The three spring months exhibited not only an unusually high temperature, but also extraordinary dryness of the atmosphere. May was remarkable for containing the hottest day of the year (in which the thermometer rose to $96\frac{1}{2}^{\circ}$), and also for affording the smallest amount of rain, which measured but .7 of an inch for the entire month.

The mean temperatures of June, July, and August averaged rather more than the summer months of the previous year, for although there were no days of such excessive heat as was endured in July of 1879, the torrid southerly winds were less frequently interrupted, and consequently brought with them at least an equal amount of suffering and danger to those, especially children, who were compelled to remain in the built-up portions of the city.

The early part of the autumn was hot and dry; but in November rainfall and relative humidity were both markedly increased. The mean monthly temperature of the last fall month was much below the average, and a severe and blustery December closed the year with a degree of cold which did much to reduce the average annual temperature to the usual standard for this latitude.

Professor James A. Fitzpatrick's invaluable tables record the 30th of December as the coldest day of the year, and also the one during which the thermometer marked its lowest point, that of zero.

The epidemic of the year, as we all unfortunately know only too well, was smallpox, which, notwithstanding it appeared to be checked by the praiseworthy efforts of our Board of Health in 1879, broke out again during the last twelvemonth, and grew during a few weeks to equal, or surpass in mortality that leading cause of death in our climate, Phthisis pulmonalis. The total number of cases of smallpox reported to our municipal authorities was 1832; of which 424 died, being a mortality of over one-fourth.

Perhaps it may be deemed by some as beyond the strict province of your committee to discuss the causes of this failure to keep at bay the epidemic of variola, and the means of rectifying our mode of overcoming such causes which the lamentable result of nearly 2000 cases of smallpox in our midst proves to have been erroneous. Nevertheless being urgently impressed with the importance of improving our methods for battling with this terrible disease, your committee begs leave to offer the following suggestions.

The two great allies of the spread of smallpox this last winter seem to have been, 1st, Indisposition among all classes of the community to undergo vaccination and revaccination (a repugnance which has been stimulated largely by publications in the secular periodicals abusing Jenner's discovery); and 2d, A deficiency of thorough isolation of smallpox patients and their necessary attendants.

The assertions of these pestilent assailants of vaccination are, 1st, That vaccination does not protect from, or modify smallpox; 2d, That syphilis, scrofula, and other horrible diseases are propagated by vaccination; 3d, That consumption, scrofula, and various cutaneous affections are awakened into activity by it; and 4th, and most despicable of all, That physicians only advocate the operation because they are well paid to perform it.

Since we have the very wisest authority for answering a fool sometimes according to his folly, it seems to us that the cause of practical sanitation against such epidemics would be served by every physician promulgating the following arguments as opportunity offers—

That vaccination does protect from smallpox, medical men are almost without exception obvious proof; since in the discharge of their duty to a probable average of two or three cases of smallpox each year, they are obliged to feel the pulses, examine the throats, etc. etc., of these unfortunates, and thus be fully exposed to the contagion, from the disastrous effect of which Jenner's beneficent discovery alone protects them.

As to the second and third objections, that syphilis, scrofula,

consumption, etc , are promoted by vaccination, if we grant for the sake of the argument that the operation is in a few cases (say 1 in 1000) injurious to the health, how much better off and wiser are we to choose it as the lesser evil, instead of the almost inevitable greater misfortune of smallpox, from which one out of every five dies, and another one out of every five is disfigured for life. Calculate for yourselves what would be the aspect of affairs here in Philadelphia if vaccination were abolished. Judging (as our great Revolutionary orator declares we must) of the future by the past, if we estimate the population of our city of healthy homes at 850,000, one-fifth, or 170,000, of the coming generation would die miserably of smallpox; and another 170,000 of the remainder would be crippled, blinded, or disfigured for life by the same disease.

Try, if you can, to imagine for a moment the condition of society when two out of every five people you know either die, or are rendered repulsive for life by this frightful malady; and contrast it with our present condition, in which few, if any of the people you meet positively *know* a single person who has been unmistakably and permanently injured by vaccination.

As to the vile accusation that medical men urge vaccination because it *pays* to vaccinate, although almost beneath contempt, it is very readily answered by an appeal to figures. Cases of smallpox require on an average a daily attendance for at least three weeks, which, at the usual moderate fee for medical services, would amount to forty-two dollars. Since we physicians believe that vaccination prevents smallpox (and *prove* our faith by vaccinating ourselves and our children), it is manifestly unfair to charge us with pecuniarily interested motives in advocating for the community an operation (which brings us only three dollars) as a precaution against attacks of a disease, each case of which would bring us fourteen times as much.

In conclusion, your committee would most earnestly urge the great truth which the continued observation of unprejudiced investigators throughout the world daily renders more manifest, that the one effectual protection against smallpox is vaccination, and repeated revaccination; a protection which if universally enforced by law, or by enlightened public opinion, would, we firmly believe, suffice to blot out this loathsome and fatal disease from the face of the earth.

All of which is respectfully submitted.

JOS. G. RICHARDSON,
Chairman of Committee.

METEOROLOGICAL TABLE No. 1

A General Abstract of the Meteorological Observations made at Philadelphia, Pa., during the year 1880.

By JAMES A. KIRKPATRICK, A. M.

Latitude 39° 57½′ N. Longitude 75° 11¼′ W. from Greenwich. Barometer fount 55½ feet above mean tide in the Delaware River.

1880. MONTHS.	Thermometer. Maximum.	Thermometer. Minimum.	Thermometer. Mean daily range.	Thermometer. Means. 7 A.M.	2 P.M.	9 P.M.	Monthly.	Rain or melted snow. No. of days it fell.	Amount	Clouds. Clear. ⅓ or less covered.	Cloudy. More than ⅓ covered.	Means of sky covered. 7 A.M.	2 P.M.	9 P.M.	Monthly.	Relative humidity. Maximum.	Minimum.	Means. 7 A.M.	2 P.M.	9 P.M.	Monthly.
	°	°	°	°	°	°	°	days	inches	days	days	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
January,	64	25	6.06	41.65	46.24	46.32	45.74	10	2.20	6	25	7.10	6.13	6.10	6.44	93	23	70	53	63	61.7
February,	67	17½	7.87	38.66	47.59	42.29	43.85	10	2.57	10	19	5.42	4.83	4.59	4.95	87	19	61	41	59	53.8
March,	75	24	6.22	39.27	47.64	42.84	43.25	15	4.73	7	24	6.32	6.48	6.35	6.38	90	28	62	45	59	55.1
April,	81	32	6.90	50.57	60.23	53.22	54.67	11	2.82	14	16	4.63	6.50	3.57	4.90	93	17	58	42	57	52.6
May,	96½	38	5.99	66.27	79.52	71.68	72.49	6	0.70	9	22	4.90	6.16	4.61	5.22	87	13	63	38	55	52.1
June,	95	59	3.93	73.62	82.78	76.43	77.61	8	1.83	9	21	5.10	6.87	4.43	5.47	82	22	64	44	61	56.6
July,	96	65	3.29	76.00	84.52	78.90	79.81	12	7.79	8	23	5.61	6.61	4.55	5.60	82	31	68	49	65	60.5
August,	92	62	3.60	73.37	82.29	76.19	77.28	10	5.16	8	23	7.00	6.23	5.58	6.27	86	34	72	50	69	63.6
September,	92	56½	4.20	67.23	77.30	71.25	71.92	6	1.48	8	22	6.93	5.53	3.23	5.23	88	22	69	46	64	59.5
October,	80	39	6.11	55.24	63.88	59.38	59.50	13	2.55	14	17	5.81	4.29	2.93	4.34	94	23	68	47	63	59.4
November,	71	16	5.13	42.05	48.43	46.00	45.49	11	1.99	10	20	6.30	5.83	5.43	5.85	91	17	61	49	59	56.4
December,	53	0	6.14	28.76	34.00	30.95	31.24	11	4.57	9	22	6.13	5.74	5.64	5.84	90	31	67	55	66	62.6
Annual means,	max 96½	min 0	5.41	54.39	63.12	57.95	58.49	year 123	year 38.39	year 112	year 254	5.94	5.93	4.75	5.54	max 94	min 13	65	47	62	57.8
Winter,	67	15	7.29	40.61	47.64	44.74	44.33	32	10.48	21	70	6.49	5.91	6.10	6.17	93	19	66	49	60	58.5
Spring,	96½	24	6.20	52.04	62.46	55.91	56.80	32	8.25	30	62	5.28	6.38	4.84	5.50	93	13	61	42	57	53.3
Summer,	96	59	3.61	74.33	83.20	77.17	78.23	30	14.78	25	67	5.90	6.57	4.85	5.77	86	22	68	48	65	60.3
Autumn,	92	16	5.15	54.84	63.20	58.88	58.97	30	6.02	32	59	6.35	5.22	3.86	5.14	94	17	66	47	62	58.4
Means for 29 years,	max 102	min —9	5.39	50.78	60.21	54.21	55.07	an.av. 125	an.av. 46.21	an.av. 109	an.av. 256	5.99	6.10	4.62	5.57	max 100	min 7	73	54	69	65.4

The thermometer was highest, 96½°, on the 26th of May. The warmest day was June 10th—mean temperature 88°.
" " lowest, zero, on the 30th of December. The coldest day was Dec. 30th " " 4°.

METEOROLOGICAL TABLE No. 1—*Continued.—A General Abstract of the Meteorological Observations made at Philadelphia during the year* 1879.

1879. MONTHS.	Force of vapor. Maximum.	Minimum.	Means. 7 A. M.	2 P. M.	9 P. M.	Monthly.	Winds. Monthly Resultant.	No. of times in 1000.	Barometer reduced to 32° Fahrenheit. Maximum.	Minimum.	Mean daily range.	Means. 7 A. M.	2 P. M.	9 P. M.	Monthly.
	inch	inch	inch	inch	inch	inch	direction from	times	inches	inches	inch	inches	inches	inches	inches
January,	.472	.069	.188	.192	.205	.195	N. 51° 15′ W.	154	30.616	29.490	.211	30.144	30.108	30.125	30.126
February,	.449	.037	.165	.154	.179	.166	S. 67 45 W.	339	30.564	29.210	.298	30.054	30.023	30.070	30.049
March,	.455	.047	.157	.150	.171	.159	N. 33 20 W.	301	30.390	29.296	.250	30.027	29.961	30.007	29.998
April,	.508	.069	.228	.225	.244	.232	S. 65 13 W.	296	30.317	29.540	.197	29.997	29.930	29.949	29.959
May,	.769	.093	.428	.405	.452	.428	S. 61 37 W.	271	30.289	29.707	.105	30.037	29.977	29.990	30.001
June,	.812	.249	.542	.486	.565	.531	S. 71 2 W.	250	30.228	29.569	.104	29.960	29.935	29.930	29.942
July,	.839	.30-	.616	.578	.642	.612	S. 80 4 W.	269	30.125	29.634	.101	29.944	29.921	29.927	29.931
* August,	.871	.276	.601	.559	.627	.596	South.	86	30.382	29.675	.112	30.030	29.987	30.005	30.007
September,	.841	.183	.478	.442	.511	.477	S. 82 18 W.	249	30.310	29.593	.103	30.021	29.973	29.993	29.996
October,	.570	.095	.311	.291	.335	.312	N. 87 8 W	137	30.398	29.433	.171	30.086	30.031	30.050	30.056
November,	.606	.047	.189	.183	.206	.192	N. 72 2 W.	264	30.697	29.518	.220	30.203	30.172	30.180	30.185
December,	.347	.023	.116	.116	.127	.120	N. 59 2 W.	401	30.412	29.577	.188	29.987	29.950	29.982	29.973
Annual means,	max. .871	min. .023	.335	.315	.355	.335	N. 87° 51′ W.	209	max. 30.697	min. 29.210	.172	30.041	29.997	30.017	30.018
Winter,	.481	.037	.181	.174	.194	.183	N. 75° 1′ W.	165	30.616	28.210	.256	30.110	30.075	30.109	30.098
Spring,	.769	.047	.271	.260	.289	.273	West.	224	30.390	29.269	.184	30.020	29.956	29.982	29.986
Summer,	.871	.249	.586	.541	.611	.579	S. 67 23 W.	178	30.382	29.569	.106	29.978	29.948	29.954	29.960
Autumn,	.841	.047	.326	.305	.351	.327	N. 85 8 W.	212	30.697	29.433	.165	30.103	30.059	30.074	30.079
Means for 29 years,	max. 1.059	min. .012	.324	.330	.345	.333	N. 77° 37′ W.	194	max. 30.970	min. 28.648	.165	29.938	29.897	29.923	29.918

The barometer was highest, 30 697 inches, on the 6th of December. The greatest mean daily pressure was 30.616, on 22d of November.
" " lowest, 29.210 inches, on the 3d of February. The least " " " 29.339, on 3d of February.

METEOROLOGICAL TABLE No. 2.

Great or sudden changes of Temperature at Philadelphia, Pa.

1880.

January	12.	Thermometer	fell	from	45°	at 9 P.M.	to	29°	at 9 P.M.	next	day.	Change	16°.
"	28.	"	fell	"	64	" 2 P.M.	"	39½	" 7 A.M.	"	"	"	24½
February	18.	"	fell	"	67	" 2 P.M.	"	37	" 7 A.M.	"	"	"	30
March	5.	"	fell	"	75	" 2 P.M.	"	45	" 7 A.M.	"	"	"	30
"	23.	"	fell	"	59	" 2 P.M.	"	37½	" 7 A.M.	"	"	"	21½
April	15.	"	rose	"	57	" 7 A.M.	"	81	" 2 P.M.	same	day.	"	24
June	1.	"	fell	"	87	" 2 P.M.	"	60	" 7 A.M.	next	day.	"	27
October	16.	"	fell	"	79	" 2 P.M.	"	58	" 2 P.M.	"	"	"	21
"	17.	"	fell	"	70	" 7 A.M.	"	48	" 7 A.M.	"	"	"	22
November	6.	"	fell	"	71	" 9 P.M.	"	51	" 7 A.M.	"	"	"	20
Decemb.	27.	"	fell	"	40	" 2 P.M.	"	20	" 2 P.M.	"	"	"	20

The mean temperature was below 32° on

January 13	=	1 day.
February 2, 5, 10	=	3 days.
November 22, 23, 24, 25, 26, 27	=	6 "
December 7, 8, 9, 10, 11, 19, 22, 23, 28, 29, 30, 31 . .	=	12 "
Total		22 days.

And above 81° on

May 25, 26, 27, 28	=	4 days.
June 13, 24, 25, 26, 27, 28, 29, 30	=	8 "
July 6, 7, 8, 9, 10, 11, 12, 13, 14, 25, 26 . . .	=	11 "
August 2, 10, 21, 23, 24, 25, 29	=	7 "
September 4, 5, 6	=	3 "
Total		33 days.

MORTUARY TABLE.

Record of Deaths in the City of Philadelphia, from January 1st, 1880, to December 31st, 1880, both inclusive.

Abridged from the Tables of the Philadelphia Board of Health.
(Still-births and premature births omitted.)

CAUSES OF DEATH.	Total.	Males.	Females.	Boys.	Girls.	Under 1 year.	1 to 2 years.	2 to 5 years.	Adults.	Minors.	People of color.	Nativity.		
												United States.	Foreign.	Unknown.
ALL CAUSES	17,711	9075	8636	4280	3810	4003	1285	1306	9621	8090	1113	13,151	3958	602
SPECIFIED CAUSES	17,684	9057	8627	4271	3806	3992	1283	1306	9607	8077	1112	13,136	3950	598
CLASSES.														
I.—Zymotic diseases	3824	1962	1862	1383	1380	1055	477	640	1061	2763	211	3281	460	83
II.—Constitutional diseases	4167	1999	2168	602	584	648	155	99	2981	1186	313	2988	1034	145
III.—Local diseases	7261	3790	3471	1716	1441	1549	586	525	4104	3157	457	5232	1794	235
IV.—Developmental diseases	1785	829	956	424	320	675	40	14	1041	744	96	1242	470	73
V.—Violent deaths	647	477	170	146	81	65	25	28	420	227	35	393	192	62
ORDERS.														
I.—1. Miasmatic diseases	3700	1881	1819	1366	1364	1035	476	638	970	2730	204	3219	413	68
2. Enthetic diseases	24	13	11	7	7	12	....	1	10	14	1	17	6	1
3. Dietic diseases	88	61	27	6	4	1	1	....	78	10	6	36	38	14
4. Parasitic diseases	12	7	5	4	5	7	....	1	3	9	....	9	3	
II.—1. Diathetic diseases	563	189	374	18	13	6	1	7	532	31	31	294	236	33
2. Tubercular diseases	3604	1810	1794	584	571	642	154	92	449	1155	282	2694	798	112
III.—1. Diseases of nervous system	2655	1445	1210	812	690	756	299	260	1153	1502	158	2122	463	70
2. Diseases of organs of circulation	954	476	478	70	65	34	6	12	819	135	71	563	334	57
3. Diseases of respiratory organs	1935	1012	923	554	490	516	228	192	891	1044	162	1455	438	42
4. Diseases of digestive organs	1127	549	578	234	156	229	45	41	737	390	42	733	365	29
5. Diseases of urinary organs	452	262	190	25	21	6	3	14	406	46	16	266	154	32
6. Diseases of generative organs	61	....	61	....	2	....	....	....	59	2	3	41	19	1
7. Diseases of organs of locomotion	68	39	29	19	16	5	5	6	93	35	5	47	18	3
8. Diseases of integumentary system	9	7	2	2	1	3	....	....	6	3	....	5	3	1
IV.—1. Developmental diseases of children	155	90	65	90	65	142	11	2	....	155	5	155		
2. Developmental diseases of adults	9	....	9	....	....	....	....	....	9	....	....	8	1	
3. Developmental diseases of old people	718	255	463	....	....	....	....	....	718	....	37	347	34	30
4. Diseases of nutrition	903	484	419	334	255	533	29	12	314	589	54	732	128	43
V.—1. Accident or negligence	561	405	156	145	80	65	25	28	336	225	28	351	157	53
2. Homicide	18	12	6	....	....	....	....	....	18	....	3	10	7	1
3. Suicide	68	60	8	1	1	....	....	....	66	2	4	32	28	8
CLASS I.—Zymotic diseases—														
I.—ORDER 1. Miasmatic diseases	3700	1881	1819	1366	1364	1035	476	638	970	2730	204	3219	413	68
Measles	108	54	54	52	53	39	32	30	3	105	1	106	2	
Scarlet fever	291	120	171	117	167	15	42	122	7	284	2	286	5	
Diphtheria	323	154	169	151	163	16	45	150	9	314	8	313	7	3
Quinsy	4	3	1	3	1	....	4	....	....	4	....	4		
Croup	303	175	128	175	128	36	72	142	....	303	8	303		
Hooping-cough	101	45	56	45	56	70	14	17	....	101	11	101		
Enteric fever	498	270	228	79	83	3	4	25	336	162	22	356	127	15
Typhus fever	20	15	5	2	1	....	1	....	17	3	....	8	7	5
Erysipelas	63	31	32	10	17	19	3	1	36	27	2	38	18	7
Puerperal fever	26	....	26	....	2	....	....	....	24	2	2	15	9	2
Carbuncle	6	5	1	1	....	....	....	1	5	1	....	2	4	

MORTUARY TABLE—*Continued.*

CAUSES OF DEATH.	Total.	Males.	Females.	Boys.	Girls.	Under 1 year.	1 to 2 years.	2 to 5 years.	Adults.	Minors.	People of color.	Nativity. United States.	Nativity. Foreign.	Nativity. Unknown.
CLASS I. ORDER 1.—*Continued.*														
Dysentery	98	53	45	26	17	12	11	9	55	43	5	58	36	4
Diarrhœa	129	59	70	23	26	37	7	2	80	49	5	80	37	12
Cholera morbus	73	25	48	4	10	3	3	4	59	14	1	29	43	1
Cholera infantum	891	471	420	471	420	694	176	20	....	891	69	891		
Intermittent fever	8	6	2	2	....	....	....	1	6	2	....	6	1	1
Remittent fever	57	30	27	14	15	9	8	4	28	29	5	43	12	2
Rheumatism	67	28	39	8	9	....	....	2	50	17	5	42	24	1
Cerebro-spinal meningitis	78	44	34	40	30	20	15	17	8	70	8	75	1	2
Pyæmia	66	39	27	12	5	3	1	5	49	17	8	46	15	5
Septicæmia	65	25	40	5	6	3	1	4	54	11	....	39	21	5
Smallpox	424	228	196	125	155	56	37	82	144	280	42	377	44	3
Chicken-pox	1	1	....	1	....	....	....	....	....	1	....	1		
I.—ORDER 2. Enthetic diseases	24	13	11	7	7	12	....	1	10	14	1	17	6	1
Syphilis	23	13	10	7	7	12	....	1	9	14	1	17	5	1
Hydrophobia	1	....	1	....	....	....	....	....	1	....	....	.....	1	
I.—ORDER 3. Dietic diseases	88	61	27	6	4	1	1	....	78	10	6	36	38	14
Purpura and scurvy	16	9	7	5	3	....	....	....	8	8	1	13	3	
Alcoholism	72	52	20	1	1	1	1	....	70	2	5	23	35	14
I.—ORDER 4. Parasitic diseases	12	7	5	4	5	7	....	1	3	9	....	9	3	
Thrush	9	5	4	4	4	7	....	1	1	8	....	8	1	
Worms	1	....	1	....	1	....	....	....	....	1	....	1	....	
Malignant pustule	2	2	....	....	....	....	....	....	2	....	....	.....	2	
CLASS II.—Constitutional diseases														
II.—ORDER 1. Diathetic diseases	563	189	374	18	13	6	1	7	532	31	31	294	236	33
Gout	4	3	1	....	....	....	....	....	4	....	....	2	1	1
Dropsy, general	134	56	78	9	9	1	....	5	116	18	12	90	40	4
Anæmia	24	10	14	2	3	3	....	....	19	5	1	13	9	2
Cancer	368	100	268	1	....	....	....	....	367	1	18	171	174	23
Gangrene	28	16	12	3	....	1	....	1	25	3	....	15	10	3
Leucocythæmia	5	4	1	3	1	1	1	1	1	4	....	3	2	
II.—ORDER 2. Tubercular diseases	3604	1810	1794	584	571	642	154	92	449	1155	282	2694	798	112
Scrofula	27	15	12	13	8	8	5	3	6	21	6	25	2	
Tabes mesenterica	757	396	361	375	338	550	98	54	44	713	63	729	25	3
Phthisis pulmonalis	2693	1326	1367	124	175	16	13	24	2394	299	205	1816	768	109
Hydrocephalus	127	73	54	72	50	68	38	11	5	122	8	124	3	
CLASS III.—Local diseases—														
III.—ORDER 1. Nervous diseases	2655	1445	1210	812	690	756	299	260	1153	1502	158	2122	463	70
Cephalitis	486	281	205	227	191	141	101	111	68	418	31	456	27	3
Apoplexy	289	154	135	....	1	....	....	....	288	1	14	145	123	21
Paralysis	385	174	211	14	10	4	3	6	361	24	21	242	129	14
Softening of brain and cord	96	58	38	1	....	....	1	....	95	1	6	41	45	10
Insanity	17	8	9	1	....	....	....	....	16	1	2	9	7	1
Epilepsy	44	23	21	5	3	....	....	....	36	8	3	32	6	6
Convulsions	756	373	383	364	353	463	127	101	39	717	54	739	15	2
Tetanus	74	62	12	41	10	11	1	1	23	51	3	59	14	1
Congestion of brain	337	196	141	124	98	116	51	31	115	222	20	284	45	8
Locomotor ataxy	3	2	1	....	....	....	....	....	3	....	....	.....	3	
Shock	5	3	2	....	....	....	....	....	5	....	....	4	1	
Sunstroke	37	31	6	3	1	3	....	....	33	4	1	15	21	1
Other diseases of brain, etc.	126	80	46	32	23	18	15	10	71	55	3	96	27	3
III.—ORDER 2. Diseases of organs of circulation	954	476	478	70	65	34	6	12	819	135	71	563	334	57
Pericarditis and effusion	127	51	76	14	13	....	....	4	100	27	3	67	54	6
Aneurism	33	22	11	....	....	....	....	....	33	....	4	14	12	7
Angina pectoris	25	13	12	....	1	....	....	....	24	1	1	15	9	1
Hypertrophy of heart	86	38	48	7	13	1	....	2	66	20	7	61	21	4
Embolism	20	11	9	2	2	....	1	1	16	4	1	11	8	1
Thrombosis of placenta	1	....	1	....	....	....	....	....	1	....	....	.....	1	
Other diseases of heart, etc.	662	341	321	47	36	33	5	5	579	83	55	395	229	38

MORTUARY TABLE—*Continued.*

CAUSES OF DEATH.	Total.	Males.	Females.	Boys.	Girls.	Under 1 year.	1 to 2 years.	2 to 5 years.	Adults.	Minors.	People of color.	Nativity.		
												United States.	Foreign.	Unknown.
III.—Order 3. Diseases of respiratory organs	1935	1012	923	554	490	516	228	192	891	1044	162	1455	438	42
Laryngitis	50	24	26	17	20	3	10	19	13	37	2	48	2	
Bronchitis	407	201	206	165	154	196	66	47	88	319	42	360	44	3
Pleurisy	27	13	14	1	3	2	2	....	23	4	3	16	11	
Pneumonia	995	528	467	254	228	205	116	92	513	482	81	714	260	21
Hæmoptysis	68	39	29	4	3	4	....	....	61	7	7	39	24	5
Asthma	28	15	13	3	1	....	1	1	24	4	4	12	14	2
Congestion of lungs	245	131	114	90	60	87	26	23	95	150	15	200	37	8
Other diseases of lung, etc.	115	62	53	20	21	14	6	10	74	41	5	71	41	3
III.—Order 4. Diseases of digestive organs	1127	549	578	234	156	229	45	41	737	390	42	733	365	29
Pharyngitis	4	2	2	2	2	2	....	2	....	4	....	4		
Enteritis with gastritis	454	241	213	157	114	170	42	23	183	271	18	353	94	7
Peritonitis	177	53	124	16	13	3	....	6	148	29	9	108	62	7
Ulceration of intestines	13	8	5	3	1	1	1	2	9	4	2	8	5	
Hernia	26	5	21	2	....	2	....	....	24	2	....	16	19	
Intussusception	19	10	9	5	3	6	1	....	11	8	3	13	5	1
Other dis. of stomach, etc.	37	25	12	3	2	4	....	1	32	5	2	19	18	
Other dis. of intestines	130	64	66	21	13	18	1	2	96	34	5	85	41	4
Hepatitis	39	18	21	2	....	1	....	....	37	2	....	19	19	1
Jaundice	37	16	21	10	6	15	....	....	21	16	1	23	14	
Other diseases of liver	189	106	83	12	2	7	....	4	175	14	2	84	96	9
Diseases of spleen	2	1	1	1	....	....	....	1	1	1	....	1	1	
III.—Order 5. Diseases of urinary organs	452	262	190	25	21	6	3	14	406	46	16	266	154	32
Nephritis	40	26	14	5	1	1	....	3	34	6	2	23	12	5
Ischuria	1	....	1	....	....	....	....	....	1	....	....	1		
Bright's disease	255	131	124	10	15	2	2	6	230	25	10	151	86	18
Uræmia	62	40	22	5	3	3	1	2	54	8	4	39	16	7
Diabetes	30	19	11	2	1	....	....	2	27	3	....	23	6	1
Cystitis	26	24	2	2	....	....	....	....	24	2	....	13	13	
Other diseases of kidney and bladder, etc.	38	22	16	1	1	....	....	1	36	2	....	16	21	1
III.—Order 6. Diseases of organs of generation.														
Diseases of uterus, etc.	61	....	61	....	2	....	....	....	59	2	3	41	19	1
III.—Order 7. Diseases of organs of locomotion.														
Diseases of joints, etc.	68	39	29	19	16	5	5	6	33	35	5	47	18	3
III.—Order 8. Diseases of integumentary system.														
Diseases of skin, etc.	9	7	2	2	1	3	....	....	6	3	....	5	3	1
Class IV. — Developmental diseases—														
IV.—Order 1. Developmental diseases of children	155	90	65	90	65	142	11	2	....	155	5	155		
Cyanosis	107	64	43	64	43	106	....	1	....	107	1	107		
Spina bifida	7	3	4	3	4	7	....	....	....	7	1	7		
Other malformations	12	6	6	6	6	12	....	....	....	12	....	12		
Teething	29	17	12	17	12	17	11	1	....	29	3	29		
IV.—Order 2. Developmental diseases of adults	9	....	9	....	....	....	....	....	9	....	....	8	1	
Childbirth	6	....	6	....	....	....	....	....	6	....	....	5	1	
Abortion	1	....	1	....	....	....	....	....	1	....	....	1		
Extra uterine pregnancy	2	....	2	....	....	....	....	....	2	....	....	2		
IV.—Order 3. Developmental diseases of old people	718	255	463	....	....	....	....	....	718	....	37	347	241	30
Old age	706	247	459	....	....	....	....	....	706	....	36	341	336	29
Senile gangrene	12	8	4	....	....	....	....	....	12	....	1	6	5	1

MORTUARY TABLE—*Concluded.*

CAUSES OF DEATH.	Total.	Males.	Females.	Boys.	Girls.	Under 1 year.	1 to 2 years.	2 to 5 years.	Adults.	Minors.	People of color.	Nativity.		
												United States.	Foreign.	Unknown.
IV.—Order 4. Diseases of nutrition—														
Atrophy and debility, etc...	903	484	419	334	255	533	29	12	314	589	54	732	128	43
Class V.—Violent deaths—														
V.—Order 1. Accident or negligence	561	405	156	145	80	65	25	28	336	225	28	351	157	53
Fractures, contusions, etc...	263	209	54	47	17	11	7	7	199	64	7	139	99	25
Wounds	8	8	....	4	....	1	....	....	4	4	....	7	....	1
Burns and scalds	100	41	59	24	34	3	12	20	42	58	9	77	20	3
Poison	14	8	6	1	1	2	....	....	12	2	1	11	2	1
Drowning	115	106	9	41	4	....	4	1	70	45	6	60	33	22
Suffocation	60	33	27	28	23	47	2	....	9	51	4	56	3	1
Starvation	1	....	1	....	1	1	....	....	....	1	1	1		
V.—Order 3. Homicide—														
Murder	18	12	6	....	....	....	....	....	18	....	3	10	7	1
V.—Order 4. Suicide	68	60	8	1	1	....	....	....	66	2	4	32	28	8
Wounds	28	25	3	....	1	....	....	....	27	1	....	14	11	3
Poison	10	7	3	1	....	....	....	....	9	1	....	3	4	3
Drowning	7	7	....	....	....	....	....	....	7	....	....	4	2	1
Hanging	23	21	2	....	....	....	....	....	23	....	4	11	11	1
Causes not specified, or uncertain	27	18	9	9	4	11	2	....	14	13	1	15	8	4

PRESIDENTS AND PERMANENT MEMBERS OF THE STATE SOCIETY.

OFFICERS AND MEMBERS OF COUNTY SOCIETIES,

AND

ALPHABETICAL LIST OF MEMBERS OF COUNTY SOCIETIES WITH THEIR POST-OFFICE ADDRESS.

PRESIDENTS OF THE SOCIETY.

	1848.	
*Samuel Humes, M.D.,		Lancaster County.
	1849.	
*Prof. Samuel Jackson, M.D.,		Philadelphia County.
	1850.	
*Wilmer Worthington, M.D.,		Chester County.
	1851.	
*Charles Innis, M.D.,		Northampton County.
	1852.	
Hiram Corson, M.D.,		Montgomery County.
	1853.	
*John P. Hiester, M.D.,		Berks County.
	1854.	
Jacob M. Gemmill, M.D.,		Huntingdon County.
	1855.	
*James S. Carpenter, M.D.,		Schuylkill County.
	1856.	
*R. La Roche, M.D.,		Philadelphia County.
	1857.	
John L. Atlee, M.D.,		Lancaster County.
	1858.	
*Smith Cunningham, M.D.,		Beaver County.
	1859.	
*D. Francis Condie, M.D.,		Philadelphia County.
	1860 and 1861.	
*Edward Wallace, M.D.,		Berks County.
	1862.	
Geo. F. Horton, M.D.,		Bradford County.
	1863.	
*Wilson Jewell, M.D.,		Philadelphia County.

* Denotes deceased.

1864.	
J. D. Ross, M.D.,	Blair County.
1865.	
Wm. Anderson, M.D.,	Indiana County.
1866.	
*James King, M.D.,	Allegheny County.
1867.	
Traill Green, M.D.,	Northampton County.
1868.	
John Curwen, M.D.,	Dauphin County.
1869.	
*Wm. M. Wallace, M.D.,	Erie County.
1870.	
Samuel D. Gross, M.D.,	Philadelphia County.
1871.	
*J. S. Crawford, M.D.,	Lycoming County.
1872.	
A. M. Pollock, M.D.,	Allegheny County.
1873.	
S. B. Kieffer, M.D.,	Cumberland County.
1874.	
*Washington L. Atlee, M.D.,	Philadelphia County.
1875.	
Crawford Irwin, M.D.,	Blair County.
1876.	
Robert B. Mowry, M.D.,	Allegheny County.
1877.	
D. Hayes Agnew, M.D.,	Philadelphia County.
1878.	
J. L. Stewart, M.D.,	Erie County.
1879.	
Andrew Nebinger, M.D.,	Philadelphia County.
1880.	
John T. Carpenter, M.D.,	Schuylkill County.
1881.	
Jacob L. Ziegler, M.D.,	Lancaster County.

PERMANENT MEMBERS.

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Agnew, D. Hayes	Philadelphia,	Philadelphia,	1870
Ainey, David C.	New Milford,	Susquehanna,	1874
Albright, F. G.	Lancaster,	Lancaster,	1874
Alexander, H. M.	Marietta,	Lancaster,	1881
Alexander, J. F.	Centre Hall,	Centre,	1881
Alexander, J. W.	Canonsburg,	Washington,	1877
Alleman, Horace	Hanover,	York,	1880
Allen, E. P.	Athens,	Bradford,	1863
Allen, John M.	Chester,	Delaware,	1870
Allis, Oscar H.	Philadelphia,	Philadelphia,	1874
Allison, T. H.	Kittanning,	Armstrong,	1880
Allison, T. M.	"	"	1876
Alter, M. H.,	"	"	1881
Amick, J. H. B.	Schuylkill Haven,	Schuylkill,	1880
Ammerman, Alonzo	Danville,	Montour,	1877
Anawalt, J. W.	Greensburg,	Westmoreland,	1867
Anderson, Joseph W.	Ardmore,	Montgomery,	1872
Anderson, William	Indiana,	Indiana,	1862
Andrews, Thos. H.	Philadelphia,	Philadelphia,	1876
Armstrong, R.	Lock Haven,	Clinton,	1878
Arney, G. F.	Altoona,	Blair,	1880
Arnholt, M. A.	Buchanan,	Allegheny,	1873
Asdale, W. J.	Pittsburg,	"	1868
Ash, H. St. Clair	Philadelphia,	Philadelphia,	1862
Ashhurst, John, Jr.	"	"	1881
Ashhurst, Sam'l	"	"	1876
Ashmead, William	Germantown,	"	1863
Atkinson, William B.	Philadelphia,	"	1862
Atlee, John L.	Lancaster,	Lancaster,	1868
Atlee, John L., Jr.	"	"	1881
Bacon, Daniel	Wellsboro',	Tioga,	1872
Bacon, M. L.	"	"	1879
Bailey, Wm. D.	Dillsburg,	York,	1873

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Baker, Frances N.	Media,	Delaware,	1881
Baker, Washington H.	Philadelphia,	Philadelphia,	1879
Baldwin, L. K.	"	"	1871
Balmer, A. F.	Brookville,	Jefferson,	1879
Barr, D. M.	Philadelphia,	Philadelphia,	1875
Barr, G. W.	Titusville,	Crawford,	1867
Barr, Robert	Indiana,	Indiana,	1867
Bartleson, S. P.	Clifton Heights,	Delaware,	1879
Barton, A. A.	Plains,	Luzerne,	1881
Barton, J. M.	Philadelphia,	Philadelphia,	1878
Batten, John M.	Pittsburg,	Allegheny,	1876
Baxter, Henry F.	Philadelphia,	Philadelphia,	1876
Bean, Geo. W.	Bainbridge,	Lancaster,	1878
Beane, W. H.	Middletown,	Dauphin,	1879
Beaver, D. R.	Conshohocken,	Montgomery,	1875
Beck, J. N.	Sligo,	Clarion,	1877
Bell, S. D.	Millerstown,	Butler,	1876
Benham, Silas N.	Pittsburg,	Allegheny,	1866
Bennett, Alice	Norristown,	Montgomery,	1881
Benton, S. H.	Oil City,	Venango,	1876
Berlin, J. O.	Chapman Quarries,	Northampton,	1881
Berntheizel, G. W.	Columbia,	Lancaster,	1877
Bertolet, Edwin B.	Oley,	Berks,	1879
Best, David	Meadville,	Crawford,	1868
Biddle, J. C.	Shenandoah,	Schuylkill,	1878
Bidlack, J. B. W.	Philadelphia,	Philadelphia,	1881
Birch, T. J.	Port Carbon,	Schuylkill,	1879
Birdsall, Samuel	Susquehanna De't,	Susquehanna,	1869
Bishop, H. M.	Sharon,	Mercer,	1880
Bishop, H. T.	Harrisburg,	Dauphin,	1881
Bittinger, J. H.	Hanover,	York,	1880
Blachley, O. L.	Sparta,	Washington,	1879
Blachley, S. L.	"	"	1868
Black, H. M.	Strasburg,	Lancaster,	1880
Blackwood, Wm.	Lancaster,	"	1877
Blackwood, W. R. D.	Philadelphia,	Philadelphia,	1875
Blair, A. R.	York,	York,	1879
Blair, J. M.	Fleming,	Centre,	1878
Blakeslee, W. R.	Harford,	Susquehanna,	1876
Bland, D. W.	Pottsville,	Schuylkill,	1870
Bloom, H. C.	Martinsburg,	Blair,	1879

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SEIP.
Boal, G. Y.	Baden,	Beaver,	1876
Bockius, S. A.	Columbia,	Lancaster,	1881
Boker, Charles S.	Philadelphia,	Philadelphia,	1865
Bolenius, Robt. M.	Lancaster,	Lancaster,	1881
Bonebreak, D. W.	Martinsburg,	Blair,	1866
Bonsteel, A. S.	Corry,	Erie,	1878
Bottum, A. L.	Westfield,	Tioga,	1881
Bowman, J. D.	Harrisburg,	Dauphin,	1876
Bowman, J. F.	Millersburg,	"	1878
Boyles, R. M.	Reynoldsville,	Jefferson,	1878
Bradford, T. Hewson	Philadelphia,	Philadelphia,	1880
Bradley, Chas.	Norristown,	Montgomery,	1876
Brady, S. H.	Lost Creek,	Schuylkill,	1880
Brandes, C.	Erie,	Erie,	1869
Brandt, E. B.	Mechanicsburg,	Cumberland,	1867
Brehm, Samuel H.	Newville,	"	1873
Brehman, G. E.	Altoona,	Blair,	1878
Breinig, P. B.	Bethlehem,	Northampton,	1874
Brendle, Geo. F.	Mahanoy City,	Schuylkill,	1874
Brobst, J. C.	Litiz,	Lancaster,	1881
Brooke, John B.	Reading,	Berks,	1877
Brown, Geo. W.	Port Carbon,	Schuylkill,	1867
Brown, Jas. M.	McVeytown,	Mifflin,	1880
Brown, R. B.	Summerville,	Jefferson,	1878
Brubaker, A. S.	Akron,	Lancaster,	1881
Bruce, Geo. D.	Pittsburg,	Allegheny,	1870
Bruen, Edw. T.	Philadelphia,	Philadelphia,	1879
Brumbaugh, A. B.	Huntingdon,	Huntingdon,	1873
Brundage, A. T.	Factoryville,	Wyoming,	1873
Bruner, Daniel J.	Columbia,	Lancaster,	1873
Buck, Frederick J.	Philadelphia,	Philadelphia,	1872
Buck, W. Penn	"	"	1880
Buckby, Wilson	"	"	1875
Bulkeley, J. E.	Wilkesbarre,	Luzerne,	1871
Burchfield, J. P.	Clearfield,	Clearfield,	1874
Burns, Robert	Frankford,	Philadelphia,	1863
Burpee, David	Philadelphia,	"	1876
Burr, Chas.	Scranton,	Lackawanna,	1875
Bushong, Israel	New Holland,	Lancaster,	1875
Buzzard, John	Bangor,	Northampton,	1880

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Byers, John E.	Butler,	Butler,	1880
Calvin, D. M.	Meadville,	Crawford,	1868
Cambridge, C. H.	Bellefonte,	Centre,	1880
Campbell, R. H.	Lewistown,	Mifflin,	1881
Carpenter, Henry	Lancaster,	Lancaster,	1865
Carpenter, John T.	Pottsville,	Schuylkill,	1866
Carr, A. P.	St. Clair,	"	1877
Case, A. G.	Pittsburg,	Allegheny,	1878
Chesrown, A. V.	"	"	1873
Chestnut, J. H. W.	Philadelphia,	Philadelphia,	1876
Chrisman, R. S.	Pottsville,	Schuylkill,	1875
Christie, J. H.	Allegheny,	Allegheny,	1880
Christie, L. H.	Franklin,	Venango,	1880
Christy, J. C.	Pittsburg,	Allegheny,	1878
Christy, J. L.	Conoquonessing,	Butler,	1880
Christy, R. W.	Sabbath Rest,	"	1880
Chritzman, Henry G.	Welch Run,	Franklin,	1879
Cisna, W. R.	Ickesburg,	Perry,	1868
Clagett, L. S.	Blairsville,	Indiana,	1878
Clark, A. T.	Greenville,	Mercer,	1871
Clark, L. S.	Philadelphia,	Philadelphia,	1876
Clark, R. W.	Dunbar,	Fayette,	1881
Clark, Wm.	Whitestown,	Butler,	1879
Clarke, Rowan	Tyrone,	Blair,	1864
Claudy, J. C.	Newville,	Cumberland,	1869
Cleaver, Israel	Reading,	Berks,	1873
Cleaves, Margaret A.	Harrisburg,	Dauphin,	1881
Cleemann, Richard A.	Philadelphia,	Philadelphia,	1879
Closson, C. H.	Altoona,	Blair,	1879
Coblentz, Joseph	Reading,	Berks,	1872
Cohen, J. Solis	Philadelphia,	Philadelphia,	1876
Cole, W. W.	Allegheny,	Allegheny,	1878
Coleman, W. C.	Latrobe,	Westmoreland,	1875
Compton, Wm.	Lancaster,	Lancaster,	1868
Cook, W. J.	Freeport,	Armstrong,	1878
Cooper, A. M.	Point Pleasant,	Bucks,	1881
Coover, D. H.	Harrisburg,	Dauphin,	1875
Coover, Eli H.	"	"	1876
Corson, E. M.	Norristown,	Montgomery,	1876
Corson, Hiram	Conshohocken,	"	1862
Corson, Wm.	Norristown,	"	1870

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Corss, Frederick	Kingston,	Luzerne,	1869
Cottrell, J. F.	Columbia,	Lancaster,	1881
Cowan, Frank	Greensburg,	Westmoreland,	1873
Cox, Andrew P.	Big Run,	Jefferson,	1880
Cox, Thos. B.	Lancaster,	Lancaster,	1881
Craig, Alex.	Columbia,	Lancaster,	1869
Craig, Stephen A.	Freedom,	Beaver,	1879
Crandall, G. D.	Blossburg,	Tioga,	1877
Crawford, J. B.	Wilkesbarre,	Luzerne,	1867
Crawford, J. L.	Saltsburgh,	Indiana,	1878
Crawford, J. L.	Greensburg,	Westmoreland,	1881
Crawford, Robert	Cooperstown,	Venango,	1868
Cressler, John M.	Mountain Top,	"	1876
Cresswell, John	New Bethlehem,	Clarion,	1875
Cristler, J. H.	Stoneboro',	Mercer,	1875
Cruice, Robert B.	Philadelphia,	Philadelphia,	1879
Cruice, Wm. R.	"	"	1881
Cunningham, D.	Wurtemberg,	Lawrence,	1876
Cunningham, J. G.	Kittanning,	Armstrong,	1881
Curtin, Roland G.	Philadelphia,	Philadelphia,	1881
Curtis, Levi	"	"	1862
Curwen, Jno.	Harrisburg,	Dauphin,	1866
Dale, J. Y.	Lemont,	Centre,	1877
Dale, Wm. W.	Carlisle,	Cumberland,	1868
Daly, Wm. H.	Pittsburg,	Allegheny,	1871
Darling, Lewis, Jr.	Lawrenceville,	Tioga,	1875
Davis, F. F.	Oil City,	Venango,	1870
Davis, Jesse H.	Landersburg,	Lancaster,	1881
Davis, Miles L.	Millersville,	"	1874
Davis, R.	Wilkesbarre,	Luzerne,	1874
Davis, Samuel T.	Lancaster,	Lancaster,	1869
Dayton, S. W.	Great Bend,	Susquehanna,	1871
Deaver, J. M.	Black,	Lancaster,	1881
Deisinger, J.	Hellam,	York,	1881
Detwiler, B. H.	Williamsport,	Lycoming,	1865
Dickeson, M. T. W.	Media,	Delaware,	1863
Dinwiddie, J. W.	Warrior's Mark,	Huntingdon,	1881
Donaldson, J. B.	Canonsburg,	Westmoreland,	1877
Dorworth, E S.	Bellefonte,	Centre,	1880
Doughty, Wm. E.	Hartsville,	Bucks,	1881
Drake, H. H.	Norristown,	Montgomery,	1879

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Drysdale, Thomas M.	Philadelphia,	Philadelphia,	1864
Duhring, Louis A.	"	"	1877
Duncan, W. S.	Brownsville,	Fayette,	1869
Dundor, A. B.	Reading,	Berks,	1872
Dunglison, Richard J.	Philadelphia,	Philadelphia,	1867
Dunlap, J. Francis	Manheim,	Lancaster,	1876
Dunmire, Geo. B.	Philadelphia,	Philadelphia,	1874
Dunn, J. C.	Pittsburg,	Allegheny,	1875
Dunott, Thos. J.	Harrisburg,	Dauphin,	1881
Dusenbery, C. S.	Le Raysville,	Bradford,	1875
Dwight, M. B.	Jersey Shore,	Lycoming,	1876
Easton, Andrew	Allegheny,	Allegheny,	1876
Eby, James B.	Newport,	Perry,	1873
Egbert, T. W.	Oil City,	Venango,	1869
Ehler, J. Aug.	Lancaster,	Lancaster,	1864
Eisenberg, P. Y.	Norristown,	Montgomery,	1874
Eisaman, C. D. B.	Adamsburg,	Westmoreland,	1875
Elderdice, R. B.	McKnightstown,	Adams,	1877
Ellenberger, J. W.	Harrisburg,	Dauphin,	1881
Elliott, J. C.	Bradford,	McKean,	1881
Ely, Albert E.	Shellsburg,	Bedford,	1878
Emmerling, C.	Pittsburg,	Allegheny,	1878
Emory, B. A.	Dunningville,	Washington,	1881
Engelman, David	Easton,	Northampton,	1876
Engelman, J. P.	Cherryville,	"	1876
Eppley, G. W.	Marysville,	Perry,	1880
Erdman, J. Dallas	Macungie,	Lehigh,	1875
Erdman, W. B.	"	"	1865
Eshleman, I. S.	Philadelphia,	Philadelphia,	1872
Evans, Horace Y.	"	"	1871
Evans, Isaac Newton	Hatborough,	Montgomery,	1862
Evans, Jos. R.	Bloomsburg,	Columbia,	1881
Evans, T. R.	Pittsburg,	Allegheny,	1879
Ewing, J. B.	Uniontown,	Fayette,	1878
Ewing, R. B.	West Grove,	Chester,	1879
Fay, John	Altoona,	Blair,	1870
Feicht, Benjamin	Economy,	Beaver,	1868
Fenton, Thos. H.	Philadelphia,	Philadelphia,	1880
Findley, Wm. M.	Altoona,	Blair,	1870
Finley, Wm. R.	"	"	1881
Fishburne, J. H.	Lock Haven,	Clinton,	1880

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Fisk, A. J.	Tioga,	Tioga,	1878
Fitzgerald, J. M.	Lamartine,	Clarion,	1875
Fleming, Andrew	Pittsburg,	Allegheny,	1878
Floyd, John B.	Belleville,	Mifflin,	1880
Forbes, W. S.	Philadelphia,	Philadelphia,	1881
Foster, Wm.	St. Petersburg,	Clarion,	1880
Foster, W. S.	Pittsburg,	Allegheny,	1868
Foulke, Joseph	Buckingham,	Bucks,	1864
Foust, J. W.	Reynoldsville,	Jefferson,	1880
French, Morris Stroud	Philadelphia,	Philadelphia,	1880
Frey, Levi	Glen Rock,	York,	1879
Frické, Albert	Philadelphia,	Philadelphia,	1862
Frick, Wm. S.	"	"	1873
Fritchey, John A.	Harrisburg,	Dauphin,	1881
Fugate, S.	Martha's Furnace,	Centre,	1880
Fullmer, J. S.	Milton,	Northumberland,	1879
Fulton, T. H.	Sandy Lake,	Mercer,	1874
Fulton, James	New London,	Chester,	1875
Fussell, Edwin	Media,	Delaware,	1876
Fussell, Linnæus	"	"	1875
Gable, J. C.	York,	York,	1881
Gaddis, L. S.	Uniontown,	Fayette,	1878
Gallaher, T. J.	Pittsburg,	Allegheny,	1865
Gardner, B. F.	Bloomsburg,	Columbia,	1880
Geibner, E. X.	Sandy Lake,	Mercer,	1872
Gemmill, J. M., Jr.	Tyrone,	Blair,	1874
Gerhard, J. Z.	Harrisburg,	Dauphin,	1873
Gibbs, L. H.	Scranton,	Lackawanna,	1880
Gillaud, J. C.	Greencastle,	Franklin,	1880
Gilliford, R. H.	Allegheny,	Allegheny,	1880
Girvin, Robt. M.	Philadelphia,	Philadelphia,	1880
Glenn, J. P.	Snow Shoe,	Centre,	1876
Goodell, Wm.	Philadelphia,	Philadelphia,	1870
Gorgas, S. R.	Harrisburg,	Dauphin,	1877
Gotwald, G. A.	Bethlehem,	Northampton,	1881
Graham, Sam'l	Butler,	Butler,	1875
Gray, T. H.	Erie,	Erie,	1878
Green, Geo. D.	Linwood,	Delaware,	1879
Green, Traill	Easton,	Northampton,	1863
Griffith, D. S.	Bedford,	Bedford,	1877
Griswold, E.	Sharon,	Mercer,	1873

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Gross, Samuel D.	Philadelphia,	Philadelphia,	1862
Gross, Samuel W.	"	"	1877
Grove, George	Springfield,	Cumberland,	1868
Gulden, B. C.	Minersville,	Schuylkill,	1876
Guss, Isaac	Cassville,	Huntingdon,	1880
Halbauer, T. K.	St. Clair,	Schuylkill,	1876
Halberstadt, A. H.	Pottsville,	"	1866
Halberstadt, Geo. H.	"	"	1881
Hall, A. D.	Philadelphia,	Philadelphia,	1876
Hall, L. Brewer	"	"	1879
Halsey, Calvin C.	Montrose,	Susquehanna,	1862
Hamilton, George	Philadelphia,	Philadelphia,	1862
Hamilton, Hugh	Harrisburg,	Dauphin,	1874
Harder, C. S.	Rohrsburg,	Columbia,	1876
Harris, Geo. F.	Bellefonte,	Centre,	1878
Harshberger, A.	Milroy,	Mifflin,	1874
Harshberger, A. S.	"	"	1875
Hartman, Paul A.	Harrisburg,	Dauphin,	1875
Harvey, Ellwood	Chester,	Delaware,	1862
Hassler, Jas. P.	Cochranton,	Crawford,	1871
Hatfield, Nathan	Philadelphia,	Philadelphia,	1869
Hatfield, N. L.	"	"	1862
Hay, Jacob	York,	York,	1877
Hay, John W.	Harrisburg,	Dauphin,	1873
Hay, Thomas	Philadelphia,	Philadelphia,	1866
Hayes, D. D.	Shippensburg,	Cumberland,	1873
Hayes, D. S.	Hollidaysburg,	Blair,	1871
Hayes, Thos. R.	Bellefonte,	Centre,	1877
Hays, D. M.	Carlisle,	Cumberland,	1880
Hearn, Joseph	Philadelphia,	Philadelphia,	1880
Heilman, Salem	Sharon,	Mercer,	1874
Hellyer, Edwin	Philadelphia,	Philadelphia,	1862
Helsby, Thos. H.	Williamsport,	Lycoming,	1869
Hengst, D. A.	Pittsburg,	Allegheny,	1878
Henry, Frederick P.	Philadelphia,	Philadelphia,	1879
Herbst, Wm. B.	Trexlertown,	Lehigh,	1866
Herman, A. J.	Carlisle,	Cumberland,	1872
Hermany, P.	Mahanoy City,	Schuylkill,	1874
Herr, Ambrose J.	Lancaster,	Lancaster,	1876
Herr, Benj. F.	Millersville,	"	1881
Herr, Martin L.	Lancaster,	"	1872

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Herron, Wm. M.	Allegheny,	Allegheny,	1876
Hershey, E. R.	Paradise,	Lancaster,	1881
Hertz, J. K.	Litiz,	"	1875
Hewson, Addinell	Philadelphia,	Philadelphia,	1880
Hibler, Augustus	Bellefonte,	Centre,	1876
Hickman, Napoleon	Philadelphia,	Philadelphia,	1879
Hilliard, G. W.	Richardsville,	Jefferson,	1880
Hillier, J. W.	West Middlesex,	Mercer,	1878
Hinkle, A. G. B.	Philadelphia,	Philadelphia,	1865
Holahan, John F.	York,	York,	1873
Holt, Jacob F.	Philadelphia,	Philadelphia,	1876
Homet, Volney	Camptown,	Bradford,	1870
Hoover, N. M.	North Hope,	Butler,	1876
Hopkins, Ephraim	Marshalton,	Chester,	1876
Horner, Caleb W.	Philadelphia,	Philadelphia,	1879
Horner, Charles	Gettysburg,	Adams,	1875
Horner, E. H.	Turbotville,	Northumberl'd,	1877
Horner, Robert	Gettysburg,	Adams,	1876
Horton, Geo. F.	Terrytown,	Bradford,	1862
Hosack, J. P.	Mercer,	Mercer,	1870
Hoskins, Percy C.	Milltown,	Chester,	1876
Hotchkiss, S. B.	Edinborough,	Erie,	1878
Houpt, Fred. L.	Sunbury,	Northumberland,	1877
Houston, J. Willis	Collamer,	Chester,	1880
Howland, C. A.	Shippensburg,	Cumberland,	1877
Hudson, M. F.	Belleville,	Mifflin,	1876
Huffman, D. C.	McKeesport,	Allegheny,	1880
Hughes, J. W.	Blairsville,	Indiana,	1869
Hull, A. P.	Montgomery Sta.,	Lycoming,	1877
Hull, Thomas R.	Milton,	Northumberl'd,	1877
Hull, W. R.	Williamsport,	Luzerne,	1864
Hummel, C. C.	Mechanicsburg,	Cumberland,	1881
Humphreys, G. L.	Irwin,	Westmoreland,	1877
Humphrey, Wm. T.	Osceola,	Tioga,	1869
Hunter, Chas. T.	Philadelphia,	Philadelphia,	1878
Huselton, W. S.	Allegheny City,	Allegheny,	1870
Hutton, J. C.	Harrisburg,	Dauphin,	1873
Hyson, J. M.	York,	York,	1881
Irwin, Crawford	Hollidaysburg,	Blair,	1867
Jackson, Edw.	West Chester,	Chester,	1881
Jackson, T. M.	Atlee,	Mercer,	1878

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Jacob, Harry,	Altoona,	Blair,	1880
Janney, Wm. S.	Philadelphia,	Philadelphia,	1881
Jefferies, D. W.	Chester,	Delaware,	1876
Jennings, W. H.	Blossburg,	Tioga,	1881
Jones, H. Isaac	Hyde Park,	Lackawanna,	1877
Kamerer, J. W. B.	Greensburg,	Westmoreland,	1876
Kay, Thos. W.	Columbia,	Lancaster,	1881
Keiffer, S. B.	Carlisle,	Cumberland,	1871
Keller, D. C.	Union Deposit,	Dauphin,	1869
Kemp, Agnes	Harrisburg,	Dauphin,	1881
Kennedy, Alfred L.	Philadelphia,	Philadelphia,	1862
Kerlin, Isaac N.	Media,	Delaware,	1869
Kerr, James	Pittsburg,	Allegheny,	1880
Kerr, James W.	York,	York,	1879
Keyser, Peter D.	Philadelphia,	Philadelphia,	1874
Kibler, C. B.	Corry,	Erie,	1876
King, C. B.	Allegheny,	Allegheny,	1876
King, J. C.	Reynoldsville,	Jefferson,	1880
Kirkbride, Thos. S.	Philadelphia,	Philadelphia,	1876
Kistler, E. H.	Tamaqua,	Schuylkill,	1872
Kline, L. B.	Catawissa,	Columbia,	1875
Klingensmith, I. P.	Derry Station,	Westmoreland,	1876
Knapp, C. B.	Stevensville,	Bradford,	1876
Knight, Samuel R.	Philadelphia,	Philadelphia,	1876
Knipe, J. O.	Norristown,	Montgomery,	1879
Knowles, Henry B.	Clifton Heights,	Delaware,	1881
Knox, Wm. F.	McKeesport,	Allegheny,	1867
Kratz, Harvey	Hilltown,	Berks,	1879
Krise, C. W.	Carlisle,	Cumberland,	1877
Kuhn, L. DeBarth	Reading,	Berks,	1871
Kurtz, J. Ellis	Reading,	Berks,	1881
Lachenon, H. D.	Easton,	Northampton,	1874
Lane, Samuel G.	Chambersburg,	Franklin,	1870
Langfitt, W. J.	Allegheny City,	Allegheny,	1864
Larimer, W. T.	West Lebanon,	Indiana,	1880
Laubach, Stephen	Easton,	Northampton,	1876
Leadenham, J. W.	Knox,	Clarion,	1881
Leaman, Brainard	Leaman Place,	Lancaster,	1871
Leaman, Henry	Philadelphia,	Philadelphia,	1870
Lee, Benjamin	"	"	1867
Lee, Bernard R.	Reading,	Berks,	1881

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Leet, F. H.	Greenville,	Mercer,	1876
Leffmann, Henry	Philadelphia,	Philadelphia,	1881
Leidy, Joseph	"	"	1862
Leidy, Philip	"	"	1877
Le Moyne, F.	Pittsburg,	Allegheny,	1878
Lenher, L. H.	Harrisburg,	Dauphin,	1877
Lenker, C.	Buckhorn,	Columbia,	1880
Leslie, J. D.	Susquehanna Dep.,	Susquehanna,	1879
Levan, J. R.	Philadelphia,	Philadelphia,	1880
Levis, Richard J.	"	"	1873
Lightner, J. M.	Ephrata,	Lancaster,	1881
Lineaweaver, John K.	Columbia,	Lancaster,	1875
Linn, Geo. A.	Monongahela City,	Washington,	1875
Linville, Mont.	New Castle,	Lawrence,	1876
Little, Wm. S.	Philadelphia,	Philadelphia,	1881
Livingston, J. B.	West Middlesex,	Mercer,	1869
Livingston, Thos. M.	Mountville,	Lancaster,	1875
Lochman, L. M.	York,	York,	1881
Longsdorf, W. H.	Dickinson,	Cumberland,	1871
Longstreth, M. Fisher	Darby,	Delaware,	1876
Loop, D. D.	North-East,	Erie,	1868
Lusk, Jos. S.	Harmony,	Butler,	1878
Lydig, J. M.	Troutville,	Clearfield,	1881
Lyon, Edward	Williamsport,	Lycoming,	1871
Lyon, Thomas	"	"	1872
Lyons, Wm.	Philadelphia,	Philadelphia,	1872
Lytle, Geo. E.	Monongahela City,	Washington,	1880
McBride, C. F.	Baldwin,	Butler,	1878
McCaa, D. J.	Ephrata,	Lancaster,	1880
McCann, James	Pittsburg,	Allegheny,	1867
McCarrell, D. M.	Hickory,	Washington,	1878
McCarroll, Jas.	Allegheny,	Allegheny,	1878
McClelland, Cochran	Philadelphia,	Philadelphia,	1877
McConnell, H. S.	New Brighton,	Beaver,	1878
McConoughy, D. W.	Latrobe,	Westmoreland,	1867
McConoughy, Jas.	Mt. Pleasant,	"	1876
McConoughy, Robert	"	"	1878
McCoy, Gilbert R.	Doylestown,	Bucks,	1869
McDonald, Nesbit	Pittsburg,	Allegheny,	1869
McDonough, H. H.	Vanceville,	Washington,	1881
McElroy, Jos.	Hickory,	Washington,	1876

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
McGill, P.	Williamstown,	Dauphin,	1881
McGowan, H.	Harrisburg,	"	1876
McKean, J. A.	Washington,	Washington,	1878
McKennan, Thos.	"	"	1868
McKennon, M. J.	York,	York,	1876
McKenzie, Wm.	Conshohocken,	Montgomery,	1874
McKibben, D. J.	Ashland,	Schuylkill,	1876
McKinney, D., Jr.	New Brighton,	Beaver,	1868
McMullen, James	Mechanicsburg,	Indiana,	1867
McMullen, Thomas	Greenville,	"	1865
McMurray, A. S.	Philadelphia,	Philadelphia,	1864
McRean, Thos. A.	"	"	1874
McReynolds, H. W.	Bloomsburg,	Columbia,	1862
McVicker, J. P.	Williamsport,	Lycoming,	1870
Mabon, Thos.	Allegheny,	Allegheny,	1869
Magill, Wm. H.	Danville,	Montour,	1870
Mahan, James T.	Newton Hamilton,	Mifflin,	1878
Maine, Geo. D.	Mainesburg,	Tioga,	1874
Mann, Chas. H.	Bridgeport,	Montgomery,	1876
Marks, Jno. J.	Lewistown,	Mercer,	1877
Marquis, David S.	Rochester,	Beaver,	1863
Martin, E. G.	Allentown,	Lehigh,	1866
Martin, H. G.	Cherry Flats,	Tioga,	1880
Masten, James	Westfield,	Tioga,	1872
Mathews, Franklin	Temple,	Berks,	1875
Matson, C. M.	Brookville,	Jefferson,	1878
Mausteller, J. D.	Danville,	Montour,	1873
Maxwell, Jno. K.	Worthington,	Armstrong,	1880
Mayer, E. R.	Wilkesbarre,	Luzerne,	1866
Mayer, Isaac H.	Willowstreet,	Lancaster,	1877
Mays, T. J.	Upper Lehigh,	Luzerne,	1877
Meals, N. M.	Callensburg,	Clarion,	1878
Meals, S. D.	"	"	1872
Means, Wm. A.	Luthersburg,	Clearfield,	1873
Mehard, J. W.	Mercer,	Mercer,	1878
Mehard, S. S.	"	"	1871
Meisenhelder, Ed. W.	York,	York,	1877
Melhorn, E.	New Chester,	Adams,	1879
Merklein, C. H.	Chambersburg,	Franklin,	1879
Meschter, G. K.	Centre Point,	Franklin,	1876
Meyer, L. G.	Mercer,	Mercer,	1875

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Middleton, W. J.	Harrisburg,	Dauphin,	1881
Miller, A. M.	Bird-in-Hand,	Lancaster,	1876
Miller, D. P.	Huntingdon,	Huntingdon,	1873
Miller, E. S.	Altoona,	Blair,	1880
Miller, O. L.	Allegheny,	Allegheny,	1867
Miller, S. G.	Everett,	Bedford,	1880
Miller, W. N.	Allegheny,	Allegheny,	1869
Milligan, J. D.	Madison,	Westmoreland,	1878
Milliken, D. B.	Landisburg,	Perry,	1864
Mills, Chas. K.	Philadelphia,	Philadelphia,	1876
Mills, Edward	Ulster,	Bradford,	1869
Milner, R. H.	Chester,	Delaware,	1879
Mingle, D. H.	Millheim,	Centre,	1880
Minnich, A. K.	Philadelphia,	Philadelphia,	1881
Mixsell, Jos.	Easton,	Northampton,	1874
Montgomery, E. E.	Philadelphia,	Philadelphia,	1881
Montgomery, John	Chambersburg,	Franklin,	1871
Moody, George O.	Titusville,	Crawford,	1869
Moody, H. Mont.	Bradford,	Bradford,	1869
Morris, J. Cheston	Philadelphia,	Philadelphia,	1870
Morrison, M. P.	Monongahela City,	Washington,	1871
Morrow, J. J.	Sheakleyville,	Mercer,	1876
Moss, Geo. W.	Kirby,	Greene,	1879
Mosser, E. N.	Mechanicsburg,	Cumberland,	1873
Mossman, B. E.	Greenville,	Mercer,	1870
Mowry, R. B.	Allegheny,	Allegheny,	1865
Muhlenberg, W. F.	Reading,	Berks,	1875
Mumma, E. W.	Bendersville,	Adams,	1879
Murdock, J. B.	Pittsburg,	Allegheny,	1876
Murphy, Joseph A.	Wilkesbarre,	Luzerne,	1874
Musser, C. Sumner	Aaronsburgh,	Centre,	1881
Musser, F. M.	Witmer,	Lancaster,	1874
Musser, Henry E.	"	"	1881
Musser, J. Henry	Lampeter,	"	1876
Musser, P. T.	Aaronsburg,	Centre,	1878
Nancrede, Chas. B.	Philadelphia,	Philadelphia,	1879
Nash, J. D.	"	"	1876
Nebinger, Andrew	"	"	1862
Neely, Jas. W.	Pittsburg,	Allegheny,	1879
Nelan, J. R.	Brownsville,	Fayette,	1878
Newbaker, P. C.	Washingtonville,	Montour,	1879

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Newcomet, H. W.	Philadelphia,	Philadelphia,	1874
Newton, D. N.	Towanda,	Bradford,	1874
Neyman, A. M.	Butler,	Butler,	1867
Nipple, H. M.	Freeburg,	Snyder,	1881
Noble, Wm. P.	Upton,	Franklin,	1879
Nolan, Edw. J.	Philadelphia,	Philadelphia,	1879
Nutt, Geo. D.	Williamsport,	Lycoming,	1878
Offutt, L.	Penn Station,	Westmoreland,	1880
Ogleby, James	Danville,	Montour,	1875
O'Hara, Michael	Philadelphia,	Philadelphia,	1874
O'Neal, J. W. C.	Gettysburg,	Adams,	1876
O'Neil, John J.	Philadelphia,	Philadelphia,	1874
Orris, H. O.	Newport,	Perry,	1873
Orth, H. L.	Harrisburg,	Dauphin,	1868
Ott, Isaac	Easton,	Northampton,	1871
Owens, W. R.	Ashland,	Schuylkill,	1875
Packard, John H.	Philadelphia,	Philadelphia,	1877
Packer, Nelson	Wellsboro',	Tioga,	1870
Palmer, Chas. T.	Pottsville,	Schuylkill,	1878
Pancoast, Joseph	Philadelphia,	Philadelphia,	1876
Pancoast, Wm. H.	"	"	1867
Parke, A. G. B.	Gap,	Lancaster,	1877
Parish, Wm. H.	Philadelphia,	Philadelphia,	1879
Partenheimer, John R.	"	"	1879
Patterson, J. A.	Zollarsville,	Washington,	1881
Pearson, J. W.	York Spring,	Adams,	1881
Peebles, H. H.	New Castle,	Lawrence,	1876
Pennepacker, H.	Harford,	Susquehanna,	1876
Pepper, William	Philadelphia,	Philadelphia,	1875
Perdue, W. R.	Unionville,	Chester,	1881
Perkins, E. Stanley	Philadelphia,	Philadelphia,	1874
Pflueger, C. F.	Seidersville,	Northampton,	1874
Pfouts, Geo. J.	Jersey Shore,	Lycoming,	1881
Phelps, W. C.	Philadelphia,	Philadelphia,	1869
Phillips, E.	New Haven,	Fayette,	1880
Phillips, Wm. L.	Lancaster,	Lancaster,	1878
Pillow, R. H.	Butler,	Butler,	1878
Pollock, A. M.	Pittsburg,	Allegheny,	1871
Porter, Wm. G.	Philadelphia,	Philadelphia,	1878
Pownall, H. W.	Atglen,	Chester,	1881
Prall, C. R.	Philadelphia,	Philadelphia,	1876

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Price, Jacob	West Chester,	Chester,	1864
Pursell, Isaac	Danville,	Montour,	1874
Quail, C. E.	Auburn,	Schuylkill,	1877
Quick, R. A.	Sugar Run,	Bradford,	1875
Radebaugh, J. M.	Gettysburg,	Adams,	1880
Rahauser, G. G.	Pittsburg,	Allegheny,	1876
Rahter, C. A.	Harrisburg,	Dauphin,	1873
Ramsay, Robt. W.	St. Thomas,	Franklin,	1877
Rankin, D. N.	Allegheny,	Allegheny,	1867
Rankin, M. M.	Rockdale Mills,	Jefferson,	1881
Raudenbash, A. S.	Adamstown,	Berks,	1874
Read, F. B.	Osceola Mills,	Clearfield,	1880
Reagan, G. L.	Shenandoah,	Schuylkill,	1870
Reber, W. M.	Bloomsburg,	Columbia,	1876
Redeker, F. W.	Espy,	Columbia,	1881
Redick, S. T.	Allegheny City,	Allegheny,	1875
Reed, Joseph A.	Dixmont,	Allegheny,	1877
Reichard, C. C.	Brownsville,	Fayette,	1878
Reichard, P. L.	Allentown,	Lehigh,	1868
Reid, J. K.	Conshohocken,	Montgomery,	1867
Reilly, G. W.	Harrisburg,	Dauphin,	1876
Reily, Wm. F.	Carlisle,	Cumberland,	1880
Reiter, W. C.	Pittsburg,	Allegheny,	1869
Rentschler, H. D.	Ringtown,	Schuylkill,	1878
Rice, Wm.	Rome,	Bradford,	1875
Richardson, Jos. G.	Philadelphia,	Philadelphia,	1877
Richter, A.	Williamsport,	Lycoming,	1872
Rickards, W. M. L.	Philadelphia,	Philadelphia,	1875
Riemsnyder, B. J.	Hinkletown,	Lancaster,	1881
Riggs, Elliott S.	Allegheny,	Allegheny,	1876
Righter, Washington	Philadelphia,	Philadelphia,	1879
Risley, S. D.	"	"	1878
Ritchey, John A.	Oil City,	Venango,	1874
Robbins, E. S.	Covington,	Tioga,	1880
Roberts, John B.	Philadelphia,	Philadelphia,	1878
Robins, O. M.	Shamokin,	Northampton,	1875
Roebuck, P. J.	Litiz,	Lancaster,	1866
Rogers, R. E.	Philadelphia,	Philadelphia,	1870
Roland, Oliver	Lancaster,	Lancaster,	1878
Roland, Wm. S.	York,	York,	1876
Roller, W. C.	Hollidaysburg,	Blair,	1869

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Roop, J. W.	New Cumberland,	Cumberland,	1877
Ross, James	Clarion,	Clarion,	1867
Ross, John D.	Williamsburg,	Blair,	1863
Ross, J. Frank	Clarion,	Clarion,	1870
Ross, S. M.	Altoona,	Blair,	1864
Rothrock, A.	McVeytown,	Mifflin,	1877
Rothrock, R.	Middleburg,	Snyder,	1880
Rouse, S. J.	York,	York,	1881
Rowell, W. R.	Siddensburg,	"	1881
Rupp, H.	Hummelstown,	Dauphin,	1877
Rutledge, S. R.	Blairsville,	Indiana,	1879
Sample, John	Wilkinsburg,	Allegheny,	1866
Sampson, T. W.	Emlenton,	Venango,	1876
Sandt, John	Easton,	Northampton,	1871
Santee, Eugene I.	Philadelphia,	Philadelphia,	1874
Sargent, Goram P.	Radnor,	Delaware,	1870
Sarver, William	Allegheny City,	Allegheny,	1869
Schoales, J. D.	Philadelphia,	Philadelphia,	1878
Schofield, E. Lane	Wiconisco,	Dauphin,	1881
Schrack, David	Jeffersonville,	Montgomery,	1867
Schrack, John	"	"	1862
Schultz, S. S.	Danville,	Montour,	1867
Scott, Franklin P.	Monongahela,	Washington,	1872
Seabrook, C. C.	Harrisburg,	Dauphin,	1879
Seem, A. A.	Bangor,	Northampton,	1879
Seem, A. K.	Martin's Creek,	"	1870
Seibert, W. H.	Steelton,	Dauphin,	1877
Seiler, Carl	Philadelphia,	Philadelphia,	1881
Seip, Amos	Easton,	Northampton,	1863
Seiss, R. S.	Littlestown,	Adams,	1881
Shannon, B. F.	Schuylkill Haven,	Schuylkill,	1875
Shapleigh, E. B.	Philadelphia,	Philadelphia,	1876
Shaw, Thos. W.	Pittsburg,	Allegheny,	1866
Sheaffer, A. H.	Lewistown,	Mifflin,	1876
Sheaffer, U. R.	Farmersville,	Lancaster,	1881
Shearer, Jas. Y.	Sinking Spring,	Berks,	1868
Shearer, Jas. M.	Dillsburg,	York,	1877
Sheibly, J. P.	Landisburg,	Perry,	1879
Sheller, Abram	Mount Joy,	Lancaster,	1868
Shelly, A. F.	Philadelphia,	Philadelphia,	1876
Shepler, J. T.	Dunbar,	Fayette,	1880

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Sherk, Levi A.	Union Forge,	Lebanon,	1879
Shindel, John Y.	Middleburg,	Snyder,	1881
Shive, Peter C.	Plainsville,	Luzerne,	1867
Shoemaker, John V.	Philadelphia,	Philadelphia,	1878
Shoemaker, Wm. P.	Bradford,	McKean,	1880
Short, R. N.	Mechanicsburg,	Cumberland,	1867
Shrawder, Jno. S.	Ambler,	Montgomery,	1870
Sibbet, R. L.	Carlisle,	Cumberland,	1870
Silliman, J. E.	Erie,	Erie,	1878
Simington, R. S.	Danville,	Montour,	1868
Singer, J. E.	Newport,	Perry,	1866
Skillern, S. R.	Philadelphia,	Philadelphia,	1876
Sloan, Jas. G.	Monongahela City,	Washington,	1879
Slocum, A. M.	Philadelphia,	Philadelphia,	1870
Smaltz, J. Henry	"	"	1862
Smathers, W. J.	Du Bois,	Clearfield,	1880
Smith, Albert H.	Philadelphia,	Philadelphia,	1879
Smith, Amos H.	Paradise,	Lancaster,	1879
Smith, Geo. W.	Hollidaysburg,	Blair,	1866
Smith, Henry H.	Philadelphia,	Philadelphia,	1870
Smith, J. M.	Tyrone,	Blair,	1872
Smith, John K.	Harrisburg,	Dauphin,	1880
Smith, J. R.	Pine Grove Mills,	Centre,	1877
Smith, L. A.	New Milford,	Susquehanna,	1864
Smith, Robert B.	Tioga,	Tioga,	1871
Smith, W. C. J.	Pottsville,	Schuylkill,	1879
Smith, W. H.	Intercourse,	Lancaster,	1881
Snively, A. J.	Hanover,	York,	1879
Snively, I. N.	Waynesboro,	Franklin,	1873
Snively, Wm.	Pittsburg,	Allegheny,	1878
Snodgrass, Jas. H.	"	"	1869
Snowden, S. G.	Franklin,	Venango,	1869
Spackman, R. V.	Luthersburg,	Clearfield,	1875
Spangler, B. F.	York,	York,	1877
Spaulding, S. C.	Shenandoah,	Schuylkill,	1876
Spratt, Geo. R.	Coatesville,	Chester,	1877
Stahley, G. D.	Harrisburg,	Dauphin,	1876
Stayer, A. D.	Roaring Springs,	Blair,	1876
Stebbins, Sumner	Unionville,	Chester,	1863
Stehman, H. B.	Lancaster,	Lancaster,	1881
Steinmetz, E. G.	Hokendauqua,	Lehigh,	1875

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Stephens, Wm. O.	Avondale,	Chester,	1876
Stetler, John G.	Philadelphia,	Philadelphia,	1868
Stevenson, S.	New Bedford,	Lawrence,	1878
Stewart, J. L.	Erie,	Erie,	1867
Stewart, Thos.	Carlisle,	Cumberland,	1875
Stewart, W. G.	Newville,	"	1873
Stewart, W. H.	Kittanning,	Armstrong,	1878
Stewart, Wm. S.	Philadelphia,	Philadelphia,	1877
Stiles, Geo.	Conshohocken,	Montgomery,	1876
Stillé, Alfred	Philadelphia,	Philadelphia,	1862
Stinson, Mary	Norristown,	Montgomery,	1881
Stoner, Wm. B.	Northumberland,	Northumberland,	1877
Strawbridge, Geo.	Philadelphia,	Philadelphia,	1876
Strawbridge, J. D.	Danville,	Montour,	1871
Strickland, D. H.	Erie,	Erie,	1868
Strickler, A. H.	Waynesboro',	Franklin,	1875
Strickler, M. B.	New Bloomfield,	Perry,	1877
Stubbs, Geo. E.	Philadelphia,	Philadelphia,	1874
Stubbs, J. H.	London Grove,	Chester,	1879
Sturgeon, W. H.	Uniontown,	Fayette,	1876
Suesserott, J. L.	Chambersburg,	Franklin,	1873
Sutton, R. S.	Pittsburg,	Allegheny,	1879
Swartz, Joseph	Duncannon,	Perry,	1862
Swayze, Mary Alice	Pottsville,	Schuylkill,	1877
Swigart, J. R.	Bannerville,	Snyder,	1879
Swisher, Thos. J.	Jerseytown,	Columbia,	1871
Taggart, David,	Frackville,	Schuylkill,	1881
Taylor, J. Howard	Philadelphia,	Philadelphia,	1879
Taylor, Wm. T.	"	"	1873
Temple, H. T.	New Sheffield,	Beaver,	1878
Thayer, Alvin	Erie,	Erie,	1869
Thickstun, G.	Wattsburg,	Erie,	1881
Thomas, Chas. H.	Philadelphia,	Philadelphia,	1879
Thomas, J. D.	Buchanan,	Allegheny,	1872
Thomas, O. W.	Arndtsville,	Adams,	1880
Thome, Wm. B.	Mastersonville,	Lancaster,	1881
Thompson, Benjamin	Landenberg,	Chester,	1870
Thompson, C. K.	Wellsboro',	Tioga,	1871
Thompson, L. M.	Mahanoy City,	Schuylkill,	1873
Thompson, Sydney	Spruce Creek,	Huntingdon,	1879
Thompson, W. R.	Washington,	Washington,	1878

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Thomson, J. A.	Wrightsville,	York,	1872
Thomson, John C.	Bellwood,	Blair,	1880
Todd, Fred.	Hontzsdale,	Clearfield,	1880
Trabert, J. W.	Reamstown,	Lancaster,	1876
Travers, D. B.	Steelton,	Dauphin,	1877
Treichler, A. C.	Elizabethtown,	Lancaster,	1871
Treichler, C. Galen	Honeybrook,	Chester,	1879
Troth, Samuel N.	Philadelphia,	Philadelphia,	1863
Turnbull, Chas. S.	"	"	1879
Turnbull, Laurence	"	"	1864
Twitmyre, J. H.	Sharpsville,	Mercer,	1875
Tyson, A. R.	Norristown,	Montgomery,	1879
Tyson, James	Philadelphia,	Philadelphia,	1875
Ulrich, Wm. B.	Chester,	Delaware,	1870
Umberger, J. R.	Dauphin,	Dauphin,	1870
Underwood, Gideon	Pittston,	Luzerne,	1870
Unger, David F.	Mercersburg,	Franklin,	1881
Van Kirk, T. R.	McKeesport,	Allegheny,	1870
Van Treis, J. M.	St. Thomas,	Franklin,	1876
Van Valzah, F. H.	Spring Mills,	Centre,	1881
Van Valzah, H. B.	Clearfield,	Clearfield,	1876
Vanvoorhis, J. S.	Bellevernon,	Fayette,	1869
Varian, Wm.	Titusville,	Crawford,	1870
Vastine, J. H.	Numidia,	Columbia,	1875
Vogler, Geo. W.	Philadelphia,	Philadelphia,	1881
Wagenseller, B. F.	Selinsgrove,	Snyder,	1877
Walker, R. L.	Mansfield,	Allegheny,	1870
Walter, J. B.	Centrebridge,	Bucks,	1874
Waters, D. C.	Arnot,	Tioga,	1877
Weaver, J. G.	Strasburg,	Lancaster,	1881
Weaver, J. K.	Norristown,	Montgomery,	1875
Weaver, S. J.	Weaverville,	Northampton,	1875
Webb, W. H.	Philadelphia,	Philadelphia,	1875
Webb, W. W.	Wellsboro',	Tioga,	1869
Wehner, Jacob H.	Germantown,	Philadelphia,	1868
Weidman, W. Murray	Reading,	Berks,	1867
Weist, Jno.	York,	York,	1877
Welch, Wm. M.	Philadelphia,	Philadelphia,	1870
Welchans, Geo. R.	Lancaster,	Lancaster,	1879
Wells, J. Ralston	Philadelphia,	Philadelphia,	1869
Welsh, W. S.	Franklin,	Venango,	1872

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Wentz, Wm. J.	New Providence,	Lancaster,	1876
Werner, Andrew J.	Duncannon,	Perry,	1873
Weseman, Geo. T.	Bainbridge,	Lancaster,	1880
Whann, W. Lowrie	Franklin,	Venango,	1870
Whitcomb, Henry H.	Norristown,	Montgomery,	1881
White, T. H.	Williamsburg,	Blair,	1873
Whiteside, J. E.	Philadelphia,	Philadelphia,	1875
Willoughby, J.	Clifton Heights,	Chester,	1881
Wilmot, E. F.	Great Bend,	Susquehanna,	1875
Wishart, H. S.	Harrisonville,	Fulton,	1879
Witman, Henry O.	Harrisburg,	Dauphin,	1866
Wittig, Charles F.	Philadelphia,	Philadelphia,	1863
Wolfe, Sam'l	Skippackville,	Montgomery,	1876
Wood, C. B.	Monongahela City,	Washington,	1880
Wood, E. A.	Pittsburg,	Allegheny,	1867
Wood, H. C.	Philadelphia,	Philadelphia,	1876
Woodbury, Frank	"	"	1880
Woods, J. F.	Boalsburg,	Centre,	1876
Woods, L. N.	Wheatland,	Mercer,	1878
Woodward, Chas. E.	West Chester,	Chester,	1881
Wright, Olin S.	Bradford,	McKean,	1881
Yarrow, T. J.	Philadelphia,	Philadelphia,	1870
Yost, George P.	Logansville,	York,	1880
Young, Theodore J.	Titusville,	Crawford,	1872
Zeigler, G. Winfield	Carlisle,	Cumberland,	1878
Zeigler, S. P.	"	"	1870
Ziegler, Jacob L.	Mount Joy,	Lancaster,	1865
Ziegler, J. P.	"	"	1881

OFFICERS AND MEMBERS OF COUNTY SOCIETIES.

NOTE.—Counties marked thus (?) made no report for 1881.

ADAMS COUNTY.

OFFICERS.

President,	E. Melhorn,	New Chester.
Vice-Presidents,	A. P. Beaver,	Millerstown.
	J. M. Radebaugh,	Gettysburg.
Recording Secretary,	J. E. Gilbert,	"
Corresponding Secretary,	J. W. C. O'Neal,	"
Treasurer,	E. W. Mumma,	Bendersville.

MEMBERS.

Arndtsville—Thomas, O. W.
Bendersville—Mumma, E. W.
Bonneauville—Noel, A.
Bigler P. O.—Waddelle, Jas. D. (Middletown.)
Gettysburg—Gilbert, J. E.
Horner, Chas.
Horner, Robert
O'Neal, J. W. C.
Gettysburg—
Radebaugh, J. M.
Littlestown—Seiss, R. S.
McKnightstown, Elderdice, R. B.
Millerstown—Beaver, A. P.
New Chester—Melhorn, E.
New Oxford—Sheetz, J. L.
Petersburg, Dill, A. B.
Pearson, J. W.

ALLEGHENY COUNTY.

OFFICERS.

President,	W. H. Daly,	Pittsburg.
Vice-President,	Geo. Purviance,	"
Recording Secretary,	Elliott S. Riggs,	Allegheny.
Assist. Recording Secretary,	A. V. Chessrown,	Pittsburg.
Corresponding Secretary,	J. D. Thomas,	"
Treasurer,	W. S. Huselton,	Allegheny.

MEMBERS.

Allegheny City—Bigham, Jas.
Buchanan, J. G.
Christie, J. H.
Cole, W. W.
Easton, A.
Allegheny City—
Faulkner, R. B.
Gilliford, R. H.
Heckleman, H. W.
Herron, W. M.

Allegheny City—
Huselton, W. S.
Kerr, J. W.
King, C. B.
Kirker, John
McCarrell, Jas.
McCready, R. J.
Mabon, Thos.
Meloney, J. M.
Miller, O. L.
Mowry, R. B.
Phillips, John S.
Rankin, D. N.
Reddick, Samuel T.
Riggs, D. W.
Riggs, E. S.
Sarver, Wm.
Shillito, G. M.
Voight, C. H.
Wright, J. H.
Beers—Jennings, S. D.
Crafton—Foster, D. G.
Dixmont—Reed, Jos. A.
Wiley, Chas. C.
Etna—Kroessen, W. B.
Mansfield—Walker, R. L.
McKeesport—Knox, Wm. F.
Huffman, D. C.
Vankirk, T. R.
Pittsburg, Asdale, W. J.
Arnholt, M. A.
Ayres, Samuel
Batten, Jno. M.
Benham, S. N.
Blumberg, Albert
Brewster, A. D.
Bruce, Geo. D.
Case, A. G.
Chessrown, A. V.
Christy, T. C.
Clark, H. H.
Connell, Jas. G.
Craighead, J. A.
Daly, W. H.
Davis, D. L.
Davis, Thos. D.
Duff, J. W.
Duncan, J. A.

Pittsburg—
Dunn, J. C.
Dyer, Ezra
Emmerling, C.
Estep, W. J.
Evans, T. R.
Fife, J. R.
Fleming, A.
Foster, W. S.
Fundenburg, W. F.
Gallaher, R. C.
Gallaher, T. J.
Greene, Jos. B.
Grimes, J. J.
Hengst, D. A.
Koeller, Frank
Lee, J. W.
Lange, Chris.
LeMoyne, F.
Lippincott, J. A.
MacCord, Geo. T.
McCann, Jas.
McCready, J. A.
McDonald, Nesbit
McFarlane, J. W.
McKelvey, W. H.
McNeil, G. W.
Martin, E. W.
Miller, W. N.
Murdoch, J. B.
Neely, J. W.
O'Connor, H. R.
Patten, N. N. P.
Pollock, A. M.
Purviance, Geo.
Rahauser, Geo. G.
Rea, Jas. C.
Reiter, W. C.
Rex, T. A.
Shaw, Thos. W.
Shaw, W. C.
Snively, Whitmer
Snodgrass, Jas. H.
Speer, Alex.
Sterrett, J. P.
Stevenson, Edw. S.
Stevenson, Jas. M.
Stewart, J. S.

Pittsburg—
Sutton, R. S.
Swartz, H. F.
Thomas, J. D.
Wallace, Wm.
Williams, Roger
Wishart, C. A.
Pittsburg—
Wishart, J. W.
Wood, E. A.
Springdale—Metz, A. H.
Wilkinsburg—Sample, John
Verona—Hamilton, T. M.

(?) ARMSTRONG COUNTY.

Officers.

President,	T. H. Allison,	Kittanning.
Vice-President,	J. G. Cunningham,	"
Corresponding Secretary,	W. H. Stewart,	"
Recording Secretary,	W. J. Cook,	Freeport.
Treasurer,	T. M. Allison,	Kittanning.

Members.

Apollo—Ainsley, W. B.
Freeport—Alter, David
Cook, W. J.
Gillespie, C. B.
McCurdy, R. L.
Morrow, W. L.
Schnatterly, L. W.
Thomas, A. G.
Goheenville—Calhoun, A. J.
Kittanning—Allison, T. H.
Allison, T. M.
Kittanning—
Alter, M. H.
Bowman, R. P.
Cunningham, J. G.
Jessup, Chas. J.
Stewart, W. H.
Leechburg—Hunter, R. P.
Mahoning—Marshall, R. P.
Middlesex—Ralston, R. G.
Slate-lick—McKee, J. W.
Worthington—Maxwell, J. K.

(?) BEAVER COUNTY.

Officers.

President,	H. S. McConnell,	New Brighton.
Vice-President,	J. H. Wilson,	Beaver.
Secretary,	Stephen A. Craig,	Freedom.
Treasurer,	D. L. Marquis,	Rochester.

Members.

Allegheny City (Alle'y Co.)—
Langfitt, W. J.
Baden—Boal, G. Y.
Beaver—Riggs, W. J.
Wilson, J. H.
Beaver Falls—Elliot, J. S.
Economy—Feicht, Benj.
Freedom—Craig, Stephen A.
Hookstown—McPheeters, W. D.
New Brighton—McConnell, H. S.
McKinney, David, Jr.
Rochester—Marquis, David L.
Shoustown (Alle'y Co.)—Barr, Jas. A.
Water Cure—Temple, J. C.

(?) BEDFORD COUNTY.

Officers.

President,	A. Enfield,	Clearville.
Vice-President,	S. G. Miller,	Everett.
Secretary,	H. Howard Hill,	"
Treasurer,	E. J. Miller,	Ray's Hill.

Members.

Bedford—Griffith, D. S.
Centerville—Calhoun, C. P.
Clearville—Enfield, A.
Everett—Hill, H. Howard
Miller, L. G.
Miller, S. G.
Ray's Hill—Miller, E. J.
St. Clairsville—Long, Chas.
Plank, D. A.
Woodbury—Olig, John

BERKS COUNTY.

Officers.

President,	S. L. Kurtz,	Reading.
Vice-Presidents,	W. E. Hunsberger,	Maiden Creek.
	Jos. Coblentz,	Reading.
Recording Secretary,	Israel Cleaver,	"
Corresponding Secretary,	John B. Brooke,	"
Treasurer,	J. B. Stearley,	"

Members.

Adamstown (Lancaster Co.)—
Randenbush, A.M.
Bernville—Brobst, John A.
Byerle, Geo. W.
Boyertown—Eck, W. H.
Centreport—Loose, C. G.
Fredericksburg (Lebanon Co)—
Shirk, Levi A.
Leesport—Brobst, Edward
Lenhartsville—Seaman, John K.
Maiden Creek—Hunsberger, Wm. E.
Oley—Bertolet, Edwin A.
Pricetown—Weber, Chas.
Reading—Brooke, John B.
Reading—
Cleaver, Israel
Coblentz, Jos.
Dundor, A. B.
Good, Frank H.
Kuhn, L. DeB.
Kurtz, Samuel L.
Lee, Bernard R.
Muhlenberg, Wm. F.
Stearly, J. B.
Weidman, W. Murray
Sinking Spring—Shearer, Jas. Y.
Temple—Matthews, Frank
Matthews, Jos. M.

BLAIR COUNTY.

Officers.

President,	S. M. Ross,	Altoona.
Vice-Presidents,	G. F. Arney,	"
	H. C. Bloom,	Martinsburg.
Secretary,	Geo. W. Smith,	Hollidaysburg.
Treasurer,	John D. Ross,	Williamsburg.

Members.

Altoona—Arney, G. F.
Bell, Walter
Brehman, Geo. E.
Closson, C. H.
Fay, John
Findley, Wm. M.
Finley, Wm. R.
Fulton, J. F.
Jacob, Harry
Miller, E. S.
Ross, S. M.
Ross, W. S.
Bellwood—Thompson, John C.
Hollidaysburg—Hays, D. S.
Irwin, Crawford
Irwin, Robert C.
Roller, W. C.
Hollidaysburg—
Smith, Geo. W.
Martinsburg—Bloom, F. G.
Bloom, Homer C.
Bonebreak, D. W.
Newry—Black, M. F.
Roaring Spring—Stayer, A. S.
Sabbath Rest—Christy, R. W.
Sarah P. O.—Johnston, John W.
Spruce Creek—Thompson, Sidney
Tyrone—Burket, G. W.
Clarke, Rowan
Gemmill, J. M.
Smith, Jas. M.
Williamsburg—Ake, Jos. H.
Ross, John D.
White, T. H.

BRADFORD COUNTY.

Officers.

President,	E. D. Payne,	Towanda.
Vice-Presidents,	C. E. Scott,	Athens.
	J. B. Johnson,	Towanda.
Recording Secretary,	C. K. Ladd,	"
Corresponding Secretary,	F. G. Newton,	"
Treasurer,	D. N. Newton,	"

Members.

Athens—Allen, E. P.
Scott, C. H.
Burlington—Everett, E. A.
Tracey, G. P.
Camptown—Homet, Volney
Laceyville—Ely, R. H.
Laporte (Sullivan Co.)—S. F. Calt
LeRoysville—Dusenbury, C. S.
Monroeton—Hull, W. C.
Rockwell, O. H.
New Era—Jones, L. A.
Rome—Rice, Wm.
Smithfield—Moody, H. M.
Standing Stone—Clagett, W. L.
Stevensville—Knapp, C. B.
Sugar Run—Quick, P. A.
Terrytown—Horton, Geo. F.
Towanda—De la Montayne, L.
Johnson, T. B.
Ladd, C. K.
Lyman, J. W.
Newton, D. N.
Newton, F. G.
Payne, E. D.
Woodburn, S. M.
Troy—Axtell, A. K.
Paine, Chas. F.
Tracey, E. G.
Ulster—Mills, Edward
West Franklin—Kilbourn, H. B.

BUCKS COUNTY.

Officers.

President,	A. M. Cooper,	Point Pleasant.
Vice-President,	J. B. Walter,	Centre Bridge.
Recording Secretary,	Joseph Foulke,	Buckingham.
Corresponding Secretary,	Wm. E. Doughty,	Hartsville.
Treasurer,	G. R. McCoy,	Doylestown.

Members.

Buckingham—Foulke, Joseph
Centre Bridge—Walter, Joseph B.
Doylestown—McCoy, G. R.
Swartzlander, Frank
Hartsville—Doughty, Wm. E.
Hilltown—Kratz, Harvey
Plumsteadville—Krause, J. H.
Point Pleasant—Cooper, A. M.

BUTLER COUNTY.

Officers.

President,	Jos. S. Lusk,	Harmony.
Vice-President,	S. Graham,	Butler.
Secretary and Treasurer,	J. L. Christy,	Connoquenessing.

Members.

Baldwin—McBride, C. F.
Barnhart's Mills—Bell, S. D.
McCasky—C. A.
Breakneck—Brooks, Floyd
Irwin, Wm.
Butler—Bredin, Stephen
Byers, John E.
Graham, Samuel
Neyman, A. M.
Pillow, R. H.
Connoquenessing—Christy, J. L.
Coultersville—Cowden, W. B.
Harmony—Lusk, Amos
Lusk, Jos. S.
Karn's City—Harper, Daniel
North Hope—Henlen, B. A.
Hoover, N. W.
Portersville—Wilson, H.
Saxonsburg—King, J. H.
Whitestown—Clark, W. N.

CENTRE COUNTY.

Officers.

President,	Geo. F. Harris,	Bellefonte.
Vice-Presidents,	F. H. Van Valzah,	Spring Mills.
	E. W. Hale,	Bellefonte.
Secretary and Treasurer,	Thos. R. Hayes,	"

Members.

Aaronsburg—Musser, C. S.
Musser, P. T.
Bellefonte—Dorworth, E. S.
Hale, E. W.
Harris, Geo. F.
Bellefonte—
Hayes, Thos. R.
Hibler, Augustus
Boalsburg—Woods, John F.
Centre Hall—Alexander, J. F.
Jacobs, W. A.

Fleming—Blair, J. M.
Cambridge, C. H.
Lemont—Dale, J. Y.
Martha Furnace—Fugate, S.
Millheim—Mingle, D. H.
Pine Grove Mills—Smith, J. R.
Rock Springs—Van Tries, Thos. C.
Snow Shoe—Thompson, J. A.
Spring Mills—Van Valzah, F. H.
Zion—Fisher, P. S.

CHESTER COUNTY.

Officers.

President,	G. R. Spratt,	Coatesville.
Vice-President,	R. B. Carey,	Glen Lock.
Recording Secretary,	Ephraim Hopkins,	Marshallton.
Corresponding Secretary,	Wm. R. Perdue,	Unionville.
Treasurer,	Chas. E. Woodward,	West Chester.

Members.

Atglen—Pownall, Howard
Brandywine Manor—Thompson, N. G
Cains (Lancaster Co.)—Swing, E. V.
Collamer—Houston, J. Willis
Coatesville—Morrison, T. S.
Spratt, Geo. R.
Glen Lock—Carey, R. B.
Honey Brook—Treichler, C. Galen
Landenburg—Thompson, Benj.
London Grove—Stubbs, Jos. H.
Marshallton—Hopkins, Ephraim
Milltown—Hoskins, Percy
New London—Fulton, James
Oxford—Kennedy, D. D.
Pomeroy—Taylor, Thos. A.
Unionville—Perdue, Wm. R.
Stebbins, Sumner
West Chester—Brinton, John B.
Brinton, Wm. B.
Ingram, Thos. D.
Jackson, Edw.
Massey, Isaac
Price, Jacob
Woodward, Chas. E.
West Grove—Ewing, R. B.
West Whitehead—Patrick, Elwood

CLARION COUNTY.

Officers.

President,	J. J. Wireback,	St. Petersburg.
Vice-President,	S. F. McComb,	"
Secretary,	James Frank Ross,	Clarion.
Treasurer,	Jas. Ross,	"

Members.

Callensburg—Meals, N. M.
Meals, S. D.
Reid, A. M.
Church P. O.—Shoemaker, Geo. G.
Clarion—Ross, James
Ross, J. F.
Edenburg (Knox P. O.)—
Ledenham, J. W.
New Bethlehem—Criswell, John
Wick, A. J.
Lamartine—Clover, W. M.
Fitzgerald, J. M.
Sligo—Beck, J. N.
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Matson, W. F.
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Henry, J. A.
Reynoldsville—Alexander, W. B.
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Gibson, W. M. B.
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Paine, D. L.
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Lyon, Edw.
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Irwin Station—Humphreys, G. L.
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Marchand, Jas. J.
Latrobe—McConaughy, D. W.
Welsh, D. Emmett
Ligomer—McGowan, W. D.
Madison—Milligan, J. D.
Manor Dale—Rugh, W. J.
Mount Pleasant—Clark, J. H.
McConaughy, Jas.
McConaughy, R.
Marsh, F. L.
New Alexander—Cook, J. L.
New Derry—Cosgrove, W. B.
Painterville—Berkey, N. G.
Penn Station—Offut, Lemuel
Scottdale—Strickler, A. W.
Stonerville—Rigg, J. E.
West Newtown—Pafton, F. H.
Richie, J. H.
Robinson, J. Q.
Van Kirk, B. H.
Youngstown—Bowman, R. R.
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ALPHABETICAL LIST

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Adler, John M., Philadelphia.
Adler, L. H., Philadelphia.
Agnew, D. Hayes, Philadelphia.
Ainey, A. J., Brooklyn, Susquehanna.
Ainey, D. C., New Milford, Susquehanna.
Ake, Joseph H., Williamsburg, Blair.
Albright, F. G., Lancaster, Lancaster.
Alexander, I., Marietta, Lancaster.
Alexander, J. F., Centre Hall, Centre.
Alexander, J. W., Canonsburg, Wash.
Alexander, W. B., Reynoldsville, Jefferson.
Allemon, Horace, Hanover, York.
Allen, C. L., Williamsport, Lycoming.
Allen, E. P., Athens, Bradford.
Allen, Harrison, Philadelphia.
Allen, John M., Chester, Delaware.
Allen, Joshua G., Philadelphia.
Allen, Wm. E., Hyde Park, Scranton, Lackawanna.
Allis, O. H., Philadelphia.
Allison, T. H., Kittanning, Armstrong.
Allison, T. M., Kittanning, Armstrong.
Alter, David, Freeport, Armstrong.
Alter, M. H., Kittanning, Armstrong.
Amick, J. H. B., Schuylkill Haven, Schuylkill.
Ammerman, Alonzo, Danville, Montour.
Ammerman, C. W., Orangeville, Columbia.
Anawalt, James W., Greensburg, Westmoreland.
Anders, J. M , Philadelphia.
Anderson, Joseph W., Ardmore, Montgomery.
Anderson, Wm., Indiana, Indiana.
Andrews, R. H., Lansdale, Montg'y.
Andrews, Thomas H., Philadelphia.
Ansley, Wm. B., Freeport, Armstrong.
Armstrong, J. A., Hellam, York.
Armstrong, R., Lock Haven, Clinton (Lycoming).
Arney, G. F., Altoona, Blair.
Arnholt, M. A., Pittsburg, Allegheny.
Arnold, H., Lower Merion, Montg'y.
Asdale, W. J., Pittsburg, Allegheny.
Ash, H. St. Clair, Philadelphia.
Ashhurst, Jno. Jr., Philadelphia.
Ashhurst, Samuel, Philadelphia.
Ashmead, Wm., Germantown, Phila.
Ashton, S. K., Germantown, Phila.
Atkinson, Wm. B., Philadelphia.
Atlee, John L., Lancaster, Lancaster.
Atlee, John L., Jr., Lancaster, Lancaster.
Atlee, W. Lemuel, Philadelphia.
Axtell, A. R., Troy, Bradford.
Ayres, Samuel, Pittsburg, Allegheny.

Bachman, S., Easton, Northampton.
Bachman, T. S., Hellertown, North'n.
Bacon, Daniel, Wellsboro', Tioga.
Bacon, M. L , Wellsboro', Tioga.
Baer, B. F , Philadelphia.
Bailey, Wm. B., Dillsburg, York.
Baker, A. F., Duke Centre, McKean.
Baker, Frances N., Media, Delaware.
Baker, W. A., Hydetown, Crawford.
Baker, W. H., Philadelphia.
Baldwin, L. K., Philadelphia.
Baldwin, Mary E., Wellsboro', Tioga.
Ball, Frank P., Salona, Clinton.
Balmer, A. F., Brookville, Jefferson.
Barber, J. Grier, Middleburg, Snyder.
Barber, J. H., Strattonville, Clarion.
Barber, John, Sharon, Mercer.
Barndt, S. K., Alburtis, Lehigh.
Barr, David M., Philadelphia.
Barr, G. W., Titusville, Crawford.
Barr, Robert, Indiana, Indiana.
Bartelson, S. P., Clifton Heights, Del.
Bartholow, Roberts, Philadelphia.
Barton, A. A., Plains, Luzerne.

Barton, Isaac, Philadelphia.
Barton, J. M., Philadelphia.
Batten, John M., Pittsburg, Allegheny.
Baur, Joseph, Tamaqua, Schuylkill.
Baxter, H. F., Philadelphia.
Bean, G. W., Bainbridge, Lancaster.
Beane, W. H., Middletown, Dauphin.
Beates, Henry, Philadelphia.
Beaver, A. P., Millerstown, Adams.
Beaver, D. R., Conshohocken, Montg'y.
Beck, J. N., Sligo, Clarion.
Beck, P. H., Hecktown, Northampton.
Beebe, Wm. S., Susquehanna Depot, Susquehanna.
Bell, E. H., Philadelphia.
Bell, J. R. F., Philadelphia.
Bell, S. D., Barnhart's Mill, Butler.
Bell, Walter, Altoona, Blair.
Beltz, T. H., York, York.
Benham, Silas N., Pittsburg, Alleg'y.
Benner, Henry D., Philadelphia.
Bennett, Wm. H., Philadelphia.
Benningkoff, Geo. E., Tarport, McKean.
Benton, S. H., Oil City, Venango
Berkey, N. G., Painterville, Westmore'd.
Berlin, Jas. O., Chapmanville, Northampton.
Bernardy, E. P., Philadelphia.
Berntheizel, G. W., Columbia, Lancaster.
Bertolet, Ed. A., Oley, Berks.
Best, David, Meadville, Crawford.
Beyer, W. F., Punxatawney, Jeff.
Beyerle, Geo. W., Bernsville, Berks.
Biddle, J. C., Shenandoah, Schuylkill.
Bidlack, J. B. W., Philadelphia.
Bigham, James, Allegheny, Allegheny.
Binckley, G. K., Orwigsburg, Schuyl.
Birch, T. J., Port Carbon, Schuylkill.
Birdsall, S., Susquehanna Depot, Susquehanna.
Bischoff, H. W., Halifax, Dauphin.
Bishop, H. M., Sharon, Mercer.
Bishop, W. T., Harrisburg, Dauphin.
Bittinger, J. H., Hanover, York.
Bixler, J. R., Carlisle, Cumberland.
Blachly, S. L., Sparta, Washington.
Blachley, B. M., Waynesburg, Greene.
Blachley, O. L., Sparta, Washington.
Black, H. M., Strasburg, Lancaster.
Black, M. F., Newry, Blair.
Blackwood, T. J., New Castle, Lawrence.
Blackwood, Wm., Lancaster, Lancaster.
Blackwood, W. R. D., Philadelphia.
Blaine, J. E., Tionesta, Forest (Venango).
Blair, Alex. R., York, York.
Blair, J. M., Fleming, Centre.
Blakeslee, W. R., Harford, Susquehanna.
Bland, D. W., Pottsville, Schuylkill.
Bleiler, P. O., Union Station, Lancaster.
Bloom, F. G., Martinsburg, Blair.
Bloom, Homer, Martinsburg, Blair.
Blumberg, A., Pittsburg, Allegheny.
Boal, G. Y., Baden, Beaver.
Bockius, J. A., Columbia, Lancaster.
Boker, Charles S., Philadelphia.
Bolenius, R. M., Lancaster, Lancaster.
Bolling, Rob't, Chestnut Hill, Phila.
Bonebreak, D. W., Martinsburg, Blair.
Bonsteel, A. S., Corry, Erie.
Borden, C. B., Tioga, Tioga.
Borden, H. H., Tioga, Tioga.
Bordner, H. H., Snyder.
Bottum, A. L., Westfield, Tioga.
Bournonville, Aug. C., Philadelphia.
Bowman, J. D., Harrisburg, Dauphin.
Bowman, John F., Millersburg, Daup'n.
Bowman, J. W., Camp Hill, Cumb'd.
Bowman, R. P., Kittanning, Armstrong.
Bowman, R. R., Youngstown, Westmor'ld
Boyd, Geo. B., Scranton, Lackawanna.
Boyles, R. M., Reynoldsville, Jefferson.
Brackbill, Jos., Strasburg, Lancaster.
Braden, D. W., Waynesburg, Greene.
Bradford, T. Hewson, Philadelphia.
Bradley, Chas., Norristown, Montg'my.
Bradley, T. W., Burgettstown, Wash.
Brady, S H., Lost Creek, Schuylkill.
Brandes, Charles, Erie, Erie.
Brandt, E. B., Mechanicsburg, Cumber'd
Brasee, J. M., Academia, Juniata.
Bredin, Stephen, Butler, Butler.
Brehm, S. H., Newville, Cumberland.
Brehman, G. E., Altoona, Blair.
Breinig, P. B., Bethlehem, Northamp.
Brendle, Geo. F., Mahanoy City, Schuyl.
Brewster, A. D., Pittsburg, Allegheny.
Brigham, B. L., Franklin, Venango.
Brinton, Daniel G., Philadelphia.
Brinton, John B., West Chester, Chester.
Brinton, John H., Philadelphia.
Brinton, Wm. B., West Chester, Chester.
Brobst, Edward, Leesport, Berks.
Brobst, John A., Bernsville, Berks.
Brooke, John B., Reading, Berks.
Brooks, Floyd, Breakneck, Butler.
Brown, Geo. W., Port Carbon, Schuyl.
Brown, Jas. M., McVeytown, Mifflin.
Brown, J. J., Mifflinville, Columbia.
Brown, R. B., Summerville, Jefferson.
Brown, T. M., Sharpsville, Mercer.
Brubaker, A. S., Akron, Lancaster.
Brubaker, D. T., Millerstown, Perry.
Bruce, Geo. D., Pittsburg, Allegheny.
Bruen, E. T., Philadelphia.
Brumbaugh, A. B., Huntingdon, Huntingdon.
Brundage, A. T., Factoryville, Wyoming (Susquehanna).
Brundage F., Conyngham, Luzerne.
Brundage, G. A., Factoryville, Wyoming (Susquehanna).
Bruner, Daniel J., Columbia, Lancaster.
Brush, Jas. A., Sheakleyville, Mercer.
Bryson, L. M., Martinsville, Lancaster.
Buchanan, J. G., Allegheny, Allegheny.
Buck, F. J., Philadelphia.

Buck, W. Penn, Philadelphia.
Buckby, Wilson, Philadelphia.
Bulkeley, J. E., Wilkesbarre, Luzerne.
Burchfield, J. P., Clearfield, Clearfield.
Burket, G. W., Tyrone, Blair.
Burnett, Chas. H., Philadelphia.
Burnett, J., Carbondale, Lackawanna.
Burns, ——, Port Carbon, Schuylkill.
Burns, Robert, Frankford, Phila.
Burns, R. Bruce, Frankford, Phila.
Burns, W. A., Philadelphia.
Burpee, David, Philadelphia.
Burr, Chas., Scranton, Lackawanna.
Burrell, J. L. A., Williamsport, Lyc'g.
Burton, J. H., Lock Haven, Clinton.
Bushong, Israel, New Holland, Lanc'r.
Buss, C. D., Bradford, McKean.
Buttermore, Smith, Connellsville, Fay'te.
Byers, John E., Butler, Butler.
Byers, John L., Shenandoah, Schuylkill.

Calb, S. F., Laporte, Sullivan (Bradford).
Cadwalader, C. E., Philadelphia.
Caldwell, Alex., Philadelphia.
Calhoun, A. J., Goheenville, Armstrong.
Calhoun, C. P., Centreville, Bedford.
Calvin, A. C., Meadville, Crawford.
Cambridge, C. H., Fleming, Centre.
Campbell, E. B., Williamsport, Lycom'g.
Campbell, R. A., Lewistown, Mifflin.
Canfield, H. A., Gillmer, McKean.
Canfield, Ira D., Renovo, Clinton.
Carey, G. W., East Sandy, Venango.
Carey, R. B., Glenloch, Chester.
Carncross, J. A., Philadelphia.
Carpenter, Henry, Lancaster, Lancaster.
Carpenter, John T., Pottsville, Schuyl.
Carr, A. P., St. Clair, Schuylkill.
Carrell, J. B., Hatboro, Montgomery.
Carson, Thomas, Saltsburg, Indiana.
Carter, J. S., Philadelphia.
Case, A. G., Pittsburg, Allegheny.
Case, Wm. A., Espy, Columbia.
Castle, F. D., Philadelphia.
Cauley, T. F., Pen Argyle, Northampton.
Chamberlin, A., Brooklyn, Susquehanna.
Charles, Jacob, Lincoln, Lancaster.
Chase, A. F., Philadelphia.
Cheeseman, Geo., Allegheny.
Chesrown, A. V., Pittsburg, Allegheny.
Chestnut, J. H. W., Philadelphia.
Chrisman, R. S., Pottsville, Schuylkill.
Christie, J. H., Allegheny, Allegheny.
Christie, L. H., Franklin, Venango.
Christy, J. L., Conoquenessing, Butler.
Christy, R. W., Sabbath Rest, Blair.
Christy, T. C., Pittsburg, Allegheny.
Chritzman, H. G., Welsh Run, Franklin.
Church, Rita B., Lock Haven, Clinton (Lycoming).
Church, T. C., Oil City, Venango.
Cisna, W. R., Ickesburg, Perry.
Clagett, L. S., Blairsville, Indiana.
Clagett, W. L., Standing Stone, Bradford.
Clark, A. T., Greenville, Mercer.
Clark, G. L., Centreville, Crawford.
Clark, H. H., Pittsburg, Allegheny.
Clark, L. S., Philadelphia.
Clark, W. N., Whitestown, Butler.
Clarke, J. T., Erie, Erie.
Clarke, R. W., Dunbar, Fayette.
Clarke, Rowan, Tyrone, Blair.
Claudy, J. C., Newville, Cumberland.
Cleaver, Israel, Reading, Berks.
Cleaves, Margaret, Harrisburg, Daup'n.
Cleemann, R. A., Philadelphia.
Clinger, P. S., Conestoga Centre, Lancaster.
Closson, C. H., Altoona, Blair.
Clover, W. M., Lamartine, Clarion.
Coates, Isaac T., Chester, Delaware.
Coblentz, Jos , Reading, Berks.
Cohen, J. Solis, Philadelphia.
Cole, W. W., Allegheny, Allegheny.
Coleman, Wm. C., Latrobe, Westmoreland.
Collins, James, Philadelphia.
Compton, Wm., Lancaster, Lancaster.
Connell, A. J., Scranton, Lackawanna.
Connell, Jas. G., Pittsburg, Allegheny.
Conners, W. F., Duke Centre, McKean.
Conrad, I. D., Beavertown, Snyder.
Cook, Jos. L., New Alexandria, Westmoreland.
Cook, W. J., Freeport, Armstrong.
Cooley, T. M., Sandy Lake, Mercer.
Cooper, A. M., Point Pleasant, Bucks.
Cooper, J. C., Philadelphia.
Coover, David H., Harrisburg, Dauphin.
Coover, Eli H., Harrisburg, Dauphin.
Coover, W. H., Harrisburg, Dauphin.
Corson, Ellwood M., Norristown, Montgomery.
Corson, Hiram, Plymouth Meeting, Montgomery.
Corson, Wm., Norristown, Montgomery.
Corss, Fred., Kingston, Luzerne.
Coryell, R. H.
Cotterell, J. F., Columbia, Lancaster.
Coupe, A. F., Oil City, Venango.
Cowan, Frank, Greensburg, Westmore'd.
Cox, A. P., Big Run, Jefferson.
Cox, T. B., Lancaster, Lancaster.
Craig, Alex., Columbia, Lancaster.
Craig, S. A., Freedom, Beaver.
Craighead, J. A., Pittsburg, Allegheny.
Crandall, G. D , Blossburg, Tioga.
Crandall, T. V., Philadelphia.
Crawford, J. B., Wilkesbarre, Luzerne.
Crawford, J. K., Cooperstown, Venango.
Crawford, J. L., Saltsburg, Indiana.
Crawford, J. S., Taylorstown, Wash.
Crawford, Robert, Cooperstown, Venango.
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Cressler, John, Wilkesbarre, Luzerne.

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Davis, J. H., Soudersburg, Lancaster.
Davis, M. L., Millersville, Lancaster.
Davis, R., Wilkesbarre, Luzerne.
Davis, Samuel T., Lancaster, Lancaster.
Davis, S. B., Jermyn, Lackawanna.
Davis, Thos. D., East End, Pittsburg, Allegheny.
Davis, U. Q., Milton, Northumberland.
Dayton, S. W., Great Bend, Susq.
Deakyne, A. C., Philadelphia.
Dean, G. C., Millerstown, Perry.
Dean, M. H., Wampum, Lawrence.
Deaver, J. M., Buck, Lancaster.
Deisinger, J., Hellam, York.
De La Montanye, L., Towanda, Bradford.
Delancey, Charles, Ickesburg, Perry.
Deshler, E. S., Aaronsberg, Centre.
Detweiler, Saml. B.
Detwiler, B. H., Williamsport, Lyc'g.
Dewey, E. H., Meadville, Crawford.
DeWitt, A. T., Snydertown, Northumberland.
Dickeson, W. T. W., Media, Delaware.
Dill, A. B., Petersburg, Adams.
Dille, G. W., Cooperstown, Venango.
Dille, J. M., Cooperstown, Venango.
Dillman, J., Oregon, Lancaster.
Dinwiddie, J. W., Warrior's Mark, Huntingdon.
Doby, L. L., Mosiertown, Crawford.
Doon, S. B., Bradford, McKean.
Donaldson, J. B., Canonsburg, Washing.
Donnelly, J. F., Philadelphia.
Dorand, W. R., Bradford, McKean.
Dorworth, E. S., Bellefonte, Centre.
Doud, E. S., South Bethlehem, North'n.
Dougal, C. H , Milton, Northumberland.
Doughty, Wm. E., Hartsville, Bucks.
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Drake, H. H., Norristown, Montgomery.
Drysdale, Thomas M., Philadelphia.
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Duff, J. W., Pittsburg, Allegheny.
Duff, W. L., Harrisburg, Dauphin.
Duhring, L. A., Philadelphia.
Dulles, Chas. W., Philadelphia.
Duncan, J. A., Pittsburg, Allegheny.
Duncan, J. L., Allegheny.
Duncan, W. S , Brownsville, Fayette.
Dundor, A. B., Reading, Berks.
Dunglison, Richard J., Philadelphia.
Dunlap, J. F., Manheim, Lancaster.
Dunmire, Geo. B., Philadelphia.
Dunott, T. J., Harrisburg, Dauphin.
Dunn, J. C., Pittsburg, Allegheny.
Dunn, J. M., Mackeyville, Clinton.
Dusenberry, C. S., Le Raysville, Bradford.
Dwight, H. E., Philadelphia.
Dwight, M. B., Jersey Shore, Lycoming.
Dyer, Ezra, Pittsburg, Allegheny.

Eagleson, D. S., West Alexander, Washington.
Eagleson, J. S., Meadville, Crawford.
Earley, C. R., Earley, Elk (Lycoming).
Eastman, Henry, Merrittstown, Fayette.
Easton, A., Allegheny City, Allegheny.
Eby, James B., Newport, Perry.
Eck, W. H., Boyertown, Berks.
Egbert, R. A., Red Rock, McKean.
Egbert, T. W., Oil City, Venango.
Ehler, J. Aug., Lancaster, Lancaster.
Eisaman, C. D. B., Adamsburgh, Westmoreland.
Eisenberg, Philip Y., Norristown, Montgomery.
Elderdice, R. B., McKnightstown, Adams.
Ellenberger, J. W., Harrisburg, Dauph.
Elliott, C. V., Mansfield, Tioga.
Elliott, J. C., Bradford, McKean.
Elliott, J. S., Beaver Falls, Beaver.
Elliott, Thos., Greenfield, Mercer.
Ellis, E S., Meadville, Crawford.
Ely, R. H., Laceyville, Bradford.
Emack, F. D., Schuylkill.
Emmerling, C., Pittsburg, Allegheny.
Emory, B. A , Dunningsville, Wash.
Emory, Boyd, Dunningsville, Wash.
Enfield, A., Clearville, Bedford.
Engel, Hugo, Philadelphia.
Engelman, David, Easton, Northampton.
Engelman, Jos. B., Cherryville, North'n.
Engelman, T. P., Easton, Northampton.
Engle, S. J., Jackson, Susquehanna.
Eppley, G. W., Marysville, Perry.
Erdman, F. C., Centre Valley, Lehigh.
Erdman, J. D., Macungie, Lehigh.
Erdman, Wm. B., Macungie, Lehigh.
Eshleman, Emory, Philadelphia.

Eshleman, Isaac S., Philadelphia.
Estep, W. J., Pittsburg, Allegheny.
Evans, Benj. F., Clark's Green, Lackawanna.
Evans, Edwin L., Philadelphia.
Evans, Horace, Philadelphia.
Evans, I. Newton, Hatborough, Montgomery.
Evans, J. R., Bloomsburg, Columbia.
Evans, T. R., Pittsburg, Allegheny.
Evans, W. C., Erie, Erie.
Everett, E. A., Burlington, Bradford.
Everhart, J. F., Scranton, Lackawanna.
Ewing, J. B., Uniontown, Fayette.
Ewing, R. B., West Grove, Chester.

Farquhar, Q. C., East Bethlehem, Wash.
Farrell, E. M., Townville, Crawford.
Faulkner, R. B., Allegheny, Allegheny.
Faulds, W. H., Mill Hollow, Luzerne.
Fay, John, Altoona, Blair.
Fegley, H. C., Ashland, Schuylkill.
Feicht, B., Economy, Beaver.
Feldstein, A., Philadelphia.
Fenton, Thos. H., Philadelphia.
Fetzer, D. A., Lumber City, Clearfield.
Fife, J. R., Pittsburg, Allegheny.
Filewood, F., Susquehanna Depot, Susquehanna.
Findley, Wm. M., Altoona, Blair.
Finley, W. R., Altoona, Blair.
Fischer, Emil, Philadelphia.
Fishburne, J. H., Lock Haven, Clinton.
Fisher, C. H., Scranton, Lackawanna.
Fisher, P. S., Zion, Centre.
Fisk, Ansel J., Tioga, Tioga.
Fitzgerald, J. M., Lamartine, Clarion.
Fleming, A., Pittsburg, Allegheny.
Fleming, W. L., Franklin, Venango.
Fleming, Wm. J., Philadelphia.
Flick, L. F., Philadelphia.
Flickenger, J. H., Dry Run, Franklin.
Floyd, Jno. B., Belleville, Mifflin.
Fœtherolf, A. P., Litzenburgh, Lehigh.
Follett, F. M., Bradford, McKean.
Follmer, John S., Milton, Northumberland.
Forbes, W. S., Philadelphia.
Ford, S. E , Dallas City, McKean.
Forwood, J. F. M., Chester, Delaware.
Foster, D. Gilmore, Crafton, Alleg'y.
Foster, Wm., St. Petersburg, Clarion.
Foster, W. S., Pittsburg, Allegheny.
Foulke, Jos., Buckingham, Bucks.
Foust, J. W., Reynoldsville, Jefferson.
Fox, C. W., Philadelphia.
Fox, G. T., Bath, Northampton.
Francis, W. R., Westfield, Tioga.
Franklin, M., Philadelphia.
French, Morris S., Philadelphia.
Frey, Levi, Glen Rock, York.
Frick, Wm. S., Philadelphia.
Frické, Albert, Philadelphia.
Friebis, Geo., Philadelphia.
Frischkorn, Chas., Moscow, Lacka'na.
Fritchey, J. A., Harrisburg, Dauphin.
Fritz, C. D., Hilltown, Bucks.
Fugate, S., Martha Furnace, Centre.
Fulk, Levi, New Kingston, Cumberland.
Fuller, Smith, Uniontown, Fayette.
Fulton, J. F., Altoona, Blair.
Fulton, Jas., New London, Chester.
Fulton, T. H., Sandy Lake, Mercer.
Fundenburg, W. F., Pittsburg, Alleg'y.
Fussell, Edwin, Media, Delaware.
Fussell, Linnæus, Media, Delaware.
Fussell, R. L., Media, Delaware.

Gable, J. C., York, York.
Gaddis, L. S., Uniontown, Fayette.
Gallaher, J. S., Mt. Union, Huntingdon.
Gallaher, R. C., Pittsburg, Allegheny.
Gallaher, T. J., Pittsburg, Allegheny.
Gardner, B. F., Bloomsburg, Columbia.
Gardner, E. L., Montrose, Susquehanna.
Garretson, James E., Philadelphia.
Garver, Chas., Scotland, Franklin.
Garver, Jane K , Harrisburg, Dauphin.
Gayley, Jas. F., Philadelphia.
Gemmill, J. M., Jr., Tyrone, Blair.
Gerhard, A. S., Philadelphia.
Gerhard, G. A., Ardmore, Montgomery.
Gerhard, J. Z., Harrisburg, Dauphin.
Gerry, M. M., Sylvan, Franklin.
Getchell, F. H., Philadelphia.
Gibbs, J. W., Hyde Park, Scranton, Lackawanna.
Gibbs, L. H., Hyde Park, Scranton, Lackawanna.
Gibson, W. M. B., Reynoldsville, Jeffer.
Giebner, E. X., Sandy Lake, Mercer.
Gilbert, J. E., Gettysburg, Adams.
Gilbert, S. F., Elysburg, Northumberl'd.
Gilbert, Wm. Kent, Philadelphia.
Gillaud, J. C , Greencastle, Franklin.
Gillespie, C. E., Freeport, Armstrong.
Gillett, B., Franklin, Venango.
Gilliford, R. H., Allegheny, Allegheny.
Girvin, Edwin R., Philadelphia.
Girvin, Robert M., Philadelphia.
Githens, W. H. H., Philadelphia.
Gittings, J. B. H., Philadelphia.
Given, Robert A., Clifton Heights, Del.
Glacken, M., Green, Lancaster
Glenn, Geo., Jr., Cornwall, Lebanon (Schuylkill).
Glenn, J. B., Pittsville, Venango.
Glenn, J. P., Snow Shoe, Centre.
Glenwood, Greene J., Jr., Pittsburg, Alle.
Good, F. H., Reading, Berks.
Goodell, Wm., Philadelphia.
Gorgas, S. R., Harrisburg, Dauphin.
Gotwald, G. A., Bethlehem, Northamp'n.
Graham, F. R., Chester, Delaware.
Graham, Jas., Philadelphia.
Graham, John, Philadelphia.

Graham, Samuel, Butler, Butler.
Granger, Locke, Lawrenceville, Tioga.
Grauel, George, Danville, Montour.
Gray, T. H., Erie, Erie.
Graydon, A., Philadelphia.
Green, G. Dillwyn, Linwood, Delaware.
Green, Traill, Easton, Northampton.
Green, Wm. N., Glenwood, Susquehanna.
Greene, J. J., Pittsburg, Allegheny.
Greene, Wilson, Geneva, Fayette.
Greenlee, D. R., Meadville, Crawford.
Griffin, G. D.
Griffin, J. K., North East, Erie.
Griffith, D. S., Bedford, Bedford.
Grimes, Jos. B., Pittsburg, Southside, Allegheny.
Griswold, E., Sharon, Mercer.
Groff, Chas. A., Philadelphia.
Grooms, J. B., Brownsville, Fayette.
Gross, F. H., Philadelphia.
Gross, Samuel D., Philadelphia.
Gross, Samuel W., Philadelphia.
Grove, A. P. T., Dallastown, York.
Grove, Geo., Big Spring, Cumberland.
Grove, John H., Philadelphia.
Groves, A. F., Bradford, McKean.
Guinaer, C. H., Rixford, McKean.
Guldin, B. C., Minersville, Schuylkill.
Guss, Isaac, Cassville, Huntingdon.
Guthrie, G. W., Wilkesbarre, Luzerne.

Hakes, Harry, Wilkesbarre, Luzerne.
Halbauer, T. K., St. Clair, Schuylkill.
Halberstadt, A. H., Pottsville, Schuyl.
Halberstadt, G. H., Pottsville, Schuyl.
Hale, E W., Bellefonte, Centre.
Hall, A. Douglass, Philadelphia.
Hall, John C., Philadelphia.
Hall, L. Brewer, Philadelphia.
Halsey, C. C., Montrose, Susquehanna.
Hamell, B. F., Philadelphia.
Hamilton, B. F., Emlenton, Venango.
Hamilton, G. W., Erie, Erie.
Hamilton, George, Philadelphia.
Hamilton, Hugh, Harrisburg, Dauphin.
Hamilton, S. S., Punxatawney, Jeffer'n.
Hamilton, T. H., Verona, Allegheny.
Hand, D. B., Scranton, Lackawanna.
Hand, W. R., Bradford, McKean.
Harder, C. S., Rohrsburg, Columbia.
Harlan, Geo. C., Philadelphia.
Harlow, Lewis D., Philadelphia.
Harper, David, Karns City, Butler.
Harris, Geo. F., Bellefonte, Centre.
Harrison, Geo. M., Fairdale, Susquehanna.
Harshberger, A., Milroy, Mifflin.
Harshberger, A. S., Milroy, Mifflin.
Hart, Jacob, York, York.
Hartman, Paul A., Harrisburg, Dauphin.
Hartswick, J. G., Clearfield, Clearfield.
Hartzell, E., Fayetteville, Franklin.
Harvey, Ellwood, Chester, Delaware.
Harvey, H. D., Philadelphia.
Harvey, O. F , Wilkesbarre, Luzerne.
Hassler, James P., Cochranton, Crawford.
Hatfield, Nathan, Philadelphia.
Hatfield, N. L., Philadelphia.
Hawkins, John, Uniontown, Fayette.
Hay, Jacob, York, York.
Hay, John W., Harrisburg, Dauphin.
Hay, Thomas, Philadelphia.
Hays, D. D., Shippensburg, Cumberl'd
Hays, D. S., Hollidaysburg, Blair.
Hays, I. M., Philadelphia.
Hayes, Thos. R., Bellefonte, Centre.
Hazel, F. B., Philadelphia.
Hazlett, J. C., Bellevernon, Fayette.
Hearn, Jos., Philadelphia.
Heath, Wm. H., Hyde Park, Scranton, Lackawanna.
Heckelman, H. W., Allegheny, Allegh'y.
Heermans, E. A., Hyde Park, Scranton, Lackawanna.
Heggie, A. J., Osceola, Tioga.
Heistand, A. M., Millersville, Lancaster.
Heilman, S., Sharon, Mercer.
Hellyer, Edwin, Philadelphia.
Helsby, Thomas H., Williamsport, Lyc.
Hengst, D. A., Pittsburg, Allegheny.
Henlen, B. A., North Hope, Butler.
Henry, F. P., Philadelphia.
Henry, J. A., Punxatawney, Jefferson.
Hepburn, W. M., Williamsport, Lyc.
Herbst, Wm. B., Trexlertown, Lehigh.
Hering, E. A., Waynesboro', Franklin.
Herman, A. J., Carlisle, Cumberland.
Hermann, Perc., Kratzerville, Snyder.
Hermany, P., Mahanoy City, Schuylkill.
Herr, A. J., Lancaster, Lancaster.
Herr, B. F., Millersville, Lancaster.
Herr, F. C., Harrisburg, Dauphin.
Herr, M. L., Lancaster, Lancaster.
Herron, W. M., Allegheny, Allegheny.
Hershey, E. R., Paradise, Lancaster.
Hertz, J. K., Litiz, Lancaster.
Hess, R. J., Philadelphia (Northampton).
Hewitt, G. A., Philadelphia.
Hewson, Addinell, Philadelphia.
Hewson, Addinell, Jr., Philadelphia.
Heyl, Albert G., Philadelphia.
Hibler, Augustus, Bellefonte, Centre.
Hice, E. C., Harveyville, Luzerne.
Hickman, J. W., Delta, York.
Hickman, N., Philadelphia.
Higgins, P. J., Providence, Lackawanna.
Hill, G. Alvin, Williamsport, Lycoming.
Hill, Geo., Hughesville, Lycoming.
Hill, H. Howard, Everett, Bedford.
Hill, T. B., Ruff's Creek, Greene.
Hilliard, J. H., Richardsville, Jefferson.
Hillier, J. W., West Middlesex, Mercer.
Hinchman, W. A., Dry Run, Franklin.
Hine, E. C., Philadelphia.
Hines, E. P., Great Bend Boro', Susquehanna.

Hinkle, A. G. B., Philadelphia.
Hoffa, J. P., Washingtonville, Montour.
Hoffmann, K. M., Clintonville, Venango.
Holahan, John F., York, York.
Hollopeter, W. C., Philadelphia.
Holloway, L. M., Salma, Clinton.
Holly, S. L., Nanticoke, Lawrence.
Holt, J. F., Philadelphia.
Homet, Volney, Camptown, Bradford.
Hooke, B. P., Loysville, Perry.
Hooper, Wm. H., Philadelphia.
Hoover, N. W., North Hope, Butler.
Hopkins, Benj. C., Dunmore, Lackaw'a.
Hopkins, Ephraim, Marshalton, Chester.
Horner, Caleb W., Philadelphia.
Horner, Chas., Gettysburg, Adams.
Horner, E. H., Turbutsville, North'mb.
Horner, Joseph H., Thornton, Delaware.
Horner, Robert, Gettysburg, Adams.
Horst, M. W., Earlville, Lancaster.
Horton, Geo. F., Terrytown, Bradford.
Hosack, J. P., Mercer, Mercer.
Hosack, Wm., West Lebanon, Leb'n (Indiana).
Hoskins, Percy, Milltown, Chester.
Hotchkiss, S. B., Edinborough, Erie.
Hottenstein, C. D., Philadelphia.
Houge, D. A., Houtzdale, Clearfield.
Houpt, Fred. L., Sunbury, Northumberland.
Houser, J. W., Taylorville, Lackawanna.
Houston, J. Willis, Collamer, Chester.
Howell, W. M., Cogan Station, Lycom'g.
Howland, C. A., Shippensburg, Cumberland.
Hudson, M. F., Belleville, Mifflin.
Huffman, D. C., Pittsburg, Allegheny.
Hughes, D., Philadelphia.
Hughes, D. E., Philadelphia.
Hughes, John W., Blairsville, Indiana.
Hughes, M. B., Shickshinny, Luzerne.
Huidekoper, R. S., Philadelphia.
Hull, A. P., Montgomery, Lycoming.
Hull, G. S., Chambersburg, Franklin.
Hull, Thos. R., Milton, Northumberland.
Hull, W. C., Monroeton, Bradford.
Hull, Wm. R., Williamsport, Lycoming.
Hulshizer, A. H., Philadelphia.
Hummel, C. C., Mechanicsburg, Cumberland.
Humphrey, Wm T., Osceola, Tioga.
Humphreys, G. L., Irvin, Westmoreland.
Hunsberger, Wm. E., Maiden Creek, Berks.
Hunt, J. S., Easton, Northampton.
Hunt, Wm., Philadelphia.
Hunter, Chas. T., Philadelphia.
Hunter, J. H., Watsontown, Northumberland.
Hunter, R. P., Leechburg, Armstrong.
Hunter, William A., Upper Strasburg, Franklin.
Hurlbut, C. S., Lewistown, Mifflin.
Hursh, Geo. D., Harrisburg, Dauphin.
Huselton, W. S., Allegheny City, Alle.
Huston, J. H., Clintondale, Clinton.
Hutchinson, Jas. H., Philadelphia.
Hutton, J. C., Harrisburg, Dauphin.
Hyson, J. M., Red Lion, York.

Ingram, Nelson, Blossburg, Tioga.
Ingram, T. D., Westchester, Chester.
Irwin, Crawford, Hollidaysburg, Blair.
Irwin Robb C., Hollidaysburg, Blair.
Irwin, W., Breakneck, Butler.
Irwin, W. B., Churchton, Lancaster.
Ivison, John, Philadelphia.

Jackson, Edward, West Chester, Chester.
Jackson, Homer, Utica, Venango.
Jackson, Isaac, Brownsville, Fayette.
Jackson, P. D., New Castle, Lawrence.
Jacob, Harry, Altoona, Blair.
Jacobs, W. A., Centre Hall, Centre.
James, G. W. C., Orbisonia, Huntingdon.
James, J. T., Waynesburg, Greene.
Janney, Wm. S., Philadelphia.
Jefferis, D. W., Media, Delaware.
Jenks, W. F., Philadelphia.
Jennings, S. D., Beers, Allegheny.
Jennings, Wm. H., Arnot, Tioga.
Jessop, C. J., Kittanning, Armstrong.
Johnson, F. H., Utica, Venango.
Johnson, Russell H., Philadelphia.
Johnson, Samuel C., Greenville, Clarion (Jefferson).
Johnson, T. B., Towanda, Bradford.
Johnston, J. W., Sarah P. O., Blair.
Johnston, Thos. L., Duncannon, Perry.
Jones, H. I., Hyde Park, Scranton, Lackawanna.
Jones, L. A., New Era, Bradford.
Judd, L. D., Philadelphia.

Kain, John B., Manchester, York.
Kamerer, J. W. B., Greensburgh, Westmoreland.
Kanawell, J. F., Perrie's Creek, Snyder.
Kay, T. M., Columbia, Lancaster.
Keating, John M., Philadelphia.
Keating, W. V., Philadelphia.
Keiffer, S. B., Carlisle, Cumberl'd.
Keller, D. C., Union Deposit, Dauphin.
Kelly, J. V., Philadelphia.
Kemp, Agnes, Harrisburg, Dauphin.
Kendig, B. F., Salunga, Lancaster.
Keneagy, S., Strasburg, Lancaster.
Kennedy, Alfred L., Philadelphia.
Kennedy, D. D., Oxford, Chester.
Kerlin, Isaac N., Media, Delaware.
Kern, P. M., Bath, Northampton.
Kerr, Geo., Philadelphia.
Kerr, Jas. W., York, York.
Kerr, J. W., Allegheny, Allegheny.
Keyser, Peter D., Philadelphia.
Kibler, Chas. B., Corry, Erie.

Kifer, L. M., Irwin Station, Westmoreland.
Kilbourn, H. R., West Franklin, Bradford.
King, C. B., Allegheny City, Allegheny.
King, J. C., Reynoldsville, Jefferson.
King, J. H., Saxonburg, Butler.
Kirkbride, M. F., Philadelphia.
Kirkbride, Thos. S., Philadelphia.
Kirker, John, Allegheny City, Allegheny.
Kistler, E. H., Summit, Carbon (Schuylkill).
Kistler, W. K., Germonsville, Lehigh.
Klapp, Joseph, Philadelphia.
Kline, L. B., Catawissa, Columbia.
Kline, Wm. O., Jr., Philadelphia.
Klingensmith, I. P., Derry Sta. Westm'ld.
Knapp, C. B., Stevensville, Bradford.
Knapp, Chas P., Wyoming, Luzerne.
Knecht, C., Easton, Northampton.
Knight, Samuel R., Philadelphia.
Knipe, Jacob O., Norristown, Montg'ry.
Knox, Wm. F., McKeesport, Allegheny.
Koch, J. G., Petersville, Northampton.
Kœller, Frank, Pittsburg, Allegheny.
Kohler, J., New Holland, Lancaster.
Kratz, Harvey, Hilltown, Bucks.
Krause, J. H., Plumsteadville, Bucks.
Krise, C. W., Carlisle, Cumberland.
Kroesen, W. B., Ætna Boro', Allegheny.
Kuhn, L. DeB., Reading, Berks.
Kurtz, S. L., Reading, Berks.

Lachenour, H. D., Easton, Northampton.
Lackey, H. P., Providence, Lackawanna.
Ladd, C. K., Towanda, Bradford.
Ladd, Horace, Scranton, Lackawanna.
Laidley, J. B., Carmichaels, Greene.
Lamb, F. D., Great Bend Village, Susq.
Lane, Samuel G., Chambersburg, Frank.
Langdon, D. J., Ashland, Schuylkill.
Lange, Chris., Pittsburg, Allegheny.
Langfitt, W. J., Alleg'y, Alleg'y (Beaver).
Larimer, W. T., West Lebanon, Ind.
Laubach, Stephen, Easton, Northampt'n.
Lauman, W. H., Mt. Holly Springs, Cumberland.
Lawall, L. H., Bethlehem, Northampton.
Leadenham, J. W., Eidenberg (Knox P. O.), Clarion.
Leaman, B., Leaman Placé, Lancaster.
Leaman, Henry, Philadelphia.
Lee, B. R., Reading, Berks.
Lee, Benjamin, Philadelphia.
Lee, J. G., Philadelphia.
Lee, J. W., Pittsburg, Allegheny.
Leedom, Edwin C., Plymouth Meeting, Montgomery.
Leet, F. H., Greenville, Mercer.
Leffman, Henry, Philadelphia.
Leidy, Joseph, Philadelphia.
Leidy, Philip, Philadelphia.
Leiser, J. J., Watsontown, Northumb'ld.
Le Moyne, F., Pittsburg, Allegheny.
Lenher, C , Buckhorn, Columbia.
Lenher, L. H., Mechanicsburg, Cumberland.
Levan, J. R., Philadelphia.
Levis, Richard J., Philadelphia.
Lewis, J. A., Brackneyville, Susq.
Life, Henry, McEwensville, Northum'b.
Lightner, J. M., Ephrata, Lancaster.
Lincoln, S. W., Nelson, Tioga.
Lindley, L., Connellsville, Fayette.
Lineaweaver, J. K., Columbia, Lancaster.
Linn, G. W., Philadelphia.
Linn, Geo. A., Monongahela City, Wash.
Linville, M., New Castle, Lawrence.
Lippincott, J. A., Pittsburg, Allegheny.
Little, W. S., Philadelphia.
Livingston, A. T., Philadelphia.
Livingston, J. B., W. Middlesex, Mercer.
Livingston, T. M., Mountville, Lancast.
Lochman, Luther M., York, York.
Loder, P. E., Philadelphia.
Long, Alfred, York, York.
Long, Chas., St. Clairsville, Bedford.
Long, Hiram, Sunbury, Northumberland.
Longsdorf, W. H., Dickinson, Cumber'ld.
Longstreth, M. Fisher, Sharon Hill, Del.
Loop, A. M., Nelson, Tioga.
Loop, D. D , North East, Erie.
Lopez, Jos. H., Philadelphia.
Lowson, T. C., Brookville, Jefferson.
Loose, C. G., Centreport, Berks.
Ludlow, J. L., Philadelphia.
Lumley, E. D., Williamsport, Lycoming.
Lusk, Amos, Harmony, Butler.
Lusk, Jos. S., Harmony, Butler.
Lydick, J. M., Troutville, Clearfield.
Lyman, J. W., Towanda, Bradford.
Lyon, Chas. L., Montourville, Lycoming.
Lyon, Edward, Williamsport, Lycoming.
Lyon, Thomas, Williamsport, Lycoming.
Lyons, Wm., Philadelphia.
Lytle, G. E., Monongahela City, Wash.

MacBride, J., Philadelphia.
MacCord, Geo. T., Pittsburg, Allegheny.
McAdam, Alex. H., Philadelphia.
McArthur, John A., Philadelphia.
McBride, C. F., Baldwin, Butler.
McBride, J. B., Columbia, Lancaster.
McCaa, D. J., Ephrata, Lancaster.
McCall, C. A., Philadelphia.
McCann, Jas., Pittsburg, Allegheny.
McCarrel, D., Hickory, Washington.
McCarrell, Jas., Allegheny City, Alleg'y.
McCarrett, J. P., Eldersville, Wash.
McCaskey, C. A., Barnhart's Mill, Butler.
McChesney, R., Shelocta, Indiana.
McChesney, W. A., Shelocta, Indiana.
McCleary, J. P., Milton, Northumb'd.
McClellan, G., Philadelphia.
McClelland, Cochran, Philadelphia.
McClelland, R. M., Philadelphia.

McClosky, J. B., Mill Hall, Clinton.
McClure, Jno. P., Watsontown, North'b.
McClure, W. H., York, York.
McCollin, S. M., Philadelphia.
McComb, S. F., St. Petersburg, Clarion.
McCombs, R. S., Philadelphia.
McConaughy, D. W., Latrobe, Westmoreland.
McConaughy, Jas., Mt. Pleasant, Westmoreland.
McConaughy, Robt., Scott Dale, Westmoreland.
McConnell, H. S., New Brighton, Beaver.
McCormick, H. G., Montoursville, Lycoming.
McCoy, Gilbert R., Doylestown, Bucks.
McCoy, H. L., Smethport, McKean.
McCracken, G. Y., Philadelphia.
McCrea, C. S., Newville, Indiana.
McCready, J. A., Pittsburg, Allegheny.
McCready, R. J., Allegheny City, Alle'y.
McCrystal, Jno., Minersville, Schuylkill.
McCullough, T. C., Oil City, Venango.
McCurdy, R. L., Freeport, Armstrong.
McCurdy, W. H , Slate Ridge, York.
McDonald, Nesbit, Pittsburg, Alleg'y.
McDonough, H. H., Vanceville, Wash.
McDowell, S. B., Philadelphia.
McElrath, J. B., Satterfield, Mercer.
McElree, A. S., Washington, Washing'n.
McElroy, B. F., Philadelphia.
McElroy, J., Hickory, Washington.
McFarlane, J. W., Pittsburg, Allegheny.
McFerran, Jas. A., Philadelphia.
McGargle, O. A., Orangeville, Columbia.
McGill, Peter, Williamstown, Dauphin.
McGowen, H., Harrisburg, Dauphin.
McIlvaine, C. H., Philadelphia.
McIntire, Chas., Jr., Easton, North'ton.
McKean, John A., Washington, Wash.
McKee, G. W., Warren Centre, Bradford.
McKee, J. C., Princeton, Lawrence.
McKee, J. W., Slate-lick, Armstrong.
McKelvey, W. H., Pittsburg, Allegheny.
McKelvy, J. B., Bloomsburg, Columbia.
McKennan, H. S , Washington, Wash.
McKennan, Thos., Washington, Wash.
McKenzie, Wm., West Conshohocken, Montgomery.
McKibben, David J., Ashland, Schuyl.
McKibbon, J., Summerville, Jefferson.
McKim, V. I., Lewistown, Mifflin.
McKinney, D., Jr., New Brighton, Beav.
McKinnon, M. J., York, York.
McLallin, Stephen, Elk City, Clarion.
McLanahan, T. J., Chambersburg, Franklin.
McLean, H. D., Philadelphia.
McMillan, J. B., Clintonville, Venango.
McMorris, Noble C., Duncannon, Perry.
McMullen, Jas., Mechanicsburg, Ind.
McMullen, Thos., Greenville, Indiana.
McMurray, Andrew S., Philadelphia.
McNeil, Geo. W., Pittsburg, Allegheny.
McPheters, W. D., Hookstown, Beaver.
McRean, Thomas A., Philadelphia.
McReynolds, H. W., Bloomsburg, Columb.
McVicker, J. P., Williamsport, Lycom'g.
Mabon, Thos., Allegheny City, Alleg'y.
Macavoy, Jno., Philadelphia.
Mackres, H. O., Corry, Erie.
Maclay, David, Green Village, Franklin.
Macomber, N. G , Philadelphia.
Magill, Wm. H., Danville, Montour.
Mahon, Jos. T., Newton Hamilton, Mif'in.
Maine, Geo. D., Mainesburg, Tioga.
Mann, Chas., Bridgeport, Montgomery.
Marks, John J., Lewistown, Mifflin.
Marks, S. D., Callensburg, Clarion.
Marland, J. T., Shelocta, Indiana.
Marquis, D. S., Rochester, Beaver.
Marsh, F. L., Mt. Pleasant, Westmor'd.
Marsh, W. G., Watsontown, Northumberland.
Marshall, R. P., Mahoning, Armstrong.
Martin, A. J., Allentown, Lehigh.
Martin, Chas. M., Sunbury, Northumb.
Martin, E. G., Allentown, Lehigh.
Martin, E. W., Pittsburg, Allegheny.
Martin, H. G., Cherry Flats, Tioga.
Martin, J., Philadelphia.
Mass, G. W., Kirby, Greene.
Massey, Isaac, West Chester, Chester.
Masten, James, Westfield, Tioga.
Mathews, Franklin, Temple, Berks.
Mathews, Jas. M., Temple, Berks.
Mathiot, H. B., Smithfield, Fayette.
Matson, C. M., Brookville, Jefferson.
Matson, W. F., Brookville, Jefferson.
Matteson, D. E., Bradford, McKean.
Mausteller, J. D., Danville, Montour.
Maxwell, J. K., Worthington, Armstrong.
Mayer, Edw. R., Wilkesbarre, Luzerne.
Mayer, I. H., Willowstreet, Lancaster.
Mays, Thos. J., Upper Lehigh, Luzerne.
Meals, E. S., Harrisburg, Dauphin.
Meals, N. M., Callensburg, Clarion.
Meals, S. D., Callensburg, Clarion.
Means, W. A., DuBois, Clearfield.
Mears, G. V., Numidia, Columbia.
Mehard, Jas. W., Mercer, Mercer.
Mehard, S. S., Mercer, Mercer.
Meigs, A. V., Philadelphia.
Meigs, John Forsyth, Philadelphia.
Meisenhelter, Edw. W., York, York.
Melhorn, E., New Chester, Adams.
Mellersch, A., Lower Merion, Montg'ry.
Meloney, J. M., Allegheny, Allegheny.
Meloy. A. P., Renovo, Clinton.
Melsheimer, E. L., York, York.
Mercur, J. D., Philadelphia.
Merklein, C. H., Chambersburg, Franklin.
Meschter, Geo. K., Centre Point, Montgomery.
Metz, A. H , Springdale, Allegheny.

Meyer, L. G., Pardoe, Mercer.
Middletown, W. J., Harrisburg, Dauph.
Miller, A. M., Bird-in-Hand, Lancaster.
Miller, Chris. H., Philadelphia.
Miller, D. P., Huntingdon, Huntingdon.
Miller, E. J., Rays Hill, Bedford.
Miller, E. S., Altoona, Blair.
Miller, J. H.
Miller, O. L., Allegheny City, Allegheny.
Miller, S. G., Everett, Bedford.
Miller, W. N., Pittsburg, Alleg'y.
Miles, J. H., Milton, Northumberland.
Milligan, J. D., Madison, Westmoreland.
Milliken, D. B., Landisburg, Perry.
Milliken, J. L., Carmichaels, Greene.
Milner, R. H., Chester, Delaware.
Mills, Charles K., Philadelphia.
Mills, Edward, Ulster, Bradford.
Mingle, D. H., Millheim, Centre.
Minnich, A. K, Philadelphia.
Mish, Geo. F., Middletown, Dauphin.
Mitchell, S. Weir, Philadelphia.
Mitcheltree, Wilson, Edenburg, Lawrence.
Mixsell, Jos., Easton, Northampton.
Moffet, Wm., Philadelphia.
Montgomery, E. E., Philadelphia.
Montgomery, John, Chambersburg, Franklin.
Moody, Benj., Mansfield, Tioga.
Moody, G. O., Titusville, Crawford.
Moody, H. Mont., Smithfield, Bradford.
Moon, Wm. P., Philadelphia.
Moore, E. W., Franklin, Venango.
Moore, J. E., Emlenton, Venango.
Moore, Jas. W., Easton, Northampton.
Morehouse, Geo. R., Philadelphia.
Morey, J., Royersford, Montgomery.
Morris, J. Cheston, Philadelphia.
Morrison, M. P., Monongahela City, Washington.
Morrison, T. S., Coatesville, Chester.
Morrow, J. J., Sheakleyville, Mercer.
Morrow, W. L., Freeport, Armstrong.
Moss, G. W., Kirby, Greene.
Mosser, E. N., Mechanicsburg, Cumberland.
Mossman, B. E., Greenville, Mercer.
Mothersbaugh, H. H., Beach Creek, Clinton.
Mowery, A., Conestoga Centre, Lan.
Mowry, R. B., Allegheny City, Alleg'y
Muhlenberg, F., Philadelphia.
Muhlenberg, Wm. F., Reading, Berks.
Muller, A. F., Philadelphia.
Mumma, E. W., Bendersville, Adams.
Murdoch, F. H., Bradford, McKean.
Murdock, J. B., Pittsburg, Allegheny.
Murphy, J. A., Wilkesbarre, Luzerne.
Murray, F. M., Lenni, Delaware.
Musgrove, C. W., Lock Haven, Clinton.
Musser, C. S., Aaronsburg, Centre.
Musser, F. M., Witmer, Lancaster.
Musser, H. E., Witmer, Lancaster.
Musser, J. H., Lampeter, Lancaster.
Musser, J. H., Philadelphia.
Musser, M. Benj., Strasburg, Lancaster.
Musser, P. T., Aaronsburg, Centre.

Nancrede, Chas. B., Philadelphia.
Nash, Joseph D., Philadelphia.
Nebinger, Andrew, Philadelphia.
Neff, Geo. W., Masontown, Fayette.
Neff, P. D., Centre Hall, Centre.
Neely, J. W., Pittsburg, Allegheny.
Neiman, H. Y, Little Oley, Berks (Montgomery).
Nelan, J. R., Brownsville, Fayette.
Ness, Jas. S., Philadelphia.
Newbaker, J B., Treverton, Northum'd.
Newbaker, P. C., Washingtonville, Montour.
Newcomet, H. W., Philadelphia.
Newton, D. N., Towanda, Bradford.
Newton, F. G., Towanda, Bradford.
Neyman, A. M., Butler, Butler.
Nicholson, W. A., Summit City, Venango.
Nipple, H M., Freeburg, Snyder.
Noble, Wm. P., Upton, Franklin.
Noel, A., Bonneaville, Adams.
Nolan, Edward J., Philadelphia.
Norris, H. E., Marietta, Lancaster.
Nutt, G. D., Williamsport, Lycoming.

O'Connor, H. R., Pittsburg, Allegheny.
O'Farrell, G. D., Philadelphia.
Offutt, Lemuel, Penn Station, Westmoreland.
Ogleby, Jas., Danville, Montour.
O'Hara, Michael, Philadelphia.
Olig, John, Woodbury, Bedford.
Oliver, Chas. A., Philadelphia.
O'Neal, J. W. C., Gettysburg, Adams.
O'Neal, Walter H., Parsons, Luzerne (Adams).
O'Neill, F. X., Philadelphia.
O'Neill, J. J., Philadelphia.
Orris, H. O., Newport, Perry.
Orth, H. L., Harrisburg, Dauphin.
Osler, Owen, Philadelphia.
Ott, Isaac, Easton, Northampton.
Ott, L., Philadelphia.
Owens, Wm. R., Ashland, Schuylkill.

Packard, John H., Philadelphia.
Packer, Nelson, Wellsboro', Tioga.
Paine, Chas. F., Troy, Bradford.
Paine, D. L., Scotch Hill, Clarion (Jeff.)
Palmer, C. T., Pottsville, Schuylkill.
Pancoast, Joseph, Philadelphia.
Pancoast, Wm. H., Philadelphia.
Parcels, W. H. Lewistown, Mifflin.
Parish, W. H., Philadelphia.
Parke, A. G. B., Gap, Lancaster.
Parr, G. W., Clintonville, Venango.
Partenheimer, J. R., Philadelphia.

Partridge, C. L., Ridley Park, Delaware.
Patrick, Ellwood, West Whitehead, Ches.
Patten, N. N. P., Pittsburg, Allegheny.
Patton, A. B., Jefferson, Greene.
Patton, F. H., West Newton, Westmore'ld.
Patterson, J. A., Zollarsville, Washin'ton.
Payne, E. D., Towanda, Bradford.
Pearson, J. W., Petersburg, Adams.
Peebles, A H., Youngston, Westmore'ld.
Peeples, H. P., New Castle, Lawrence.
Peltz, Josiah, Philadelphia.
Pennepacker, H., Harford, Susquehan'a.
Pepper, Wm., Philadelphia.
Perdue, Wm. R., Unionville, Chester.
Perkins, F. M., Philadelphia.
Perkins, E. S., Philadelphia.
Petigrew, L. H., DuBois, Clearfield.
Pflueger, C. F., Seidersville, Northamp'n.
Pfouts, G. J., Jersey Shore, Lycoming.
Phelps, W. C., Philadelphia.
Philips, E. S., Tower City, Schuylkill.
Phillips, C. M.
Phillips, E., Connelsville, Fayette.
Phillips, Jno. S., Allegheny City, Alle'y.
Phister, Benjamin, Philadelphia.
Pickett, M., Corry, Erie.
Pier, W. F., Pleasant Valley, Lacka'na
Pierson, J. S., Philadelphia.
Pillow, R. H., Butler, Butler.
Plank, D. A., St. Clairsville, Bedford.
Plank, E., Christianna, Lancaster.
Pollock, A. M., Pittsburg, Allegheny.
Pollock, Jas. K., New Castle, Lawrence.
Porter, S. S., Meadville, Crawford.
Porter, Wm. G., Philadelphia.
Pownall, H., Atglen, Chester.
Praeger, H. F., Bethlehem, Northamp'n.
Prall, C. R., Philadelphia.
Prevost, L. M., Buck, Mt. Carbon (Schuylkill).
Price, A. D., Philadelphia.
Price, Jacob, West Chester, Chester.
Price, Mordecai, Philadelphia.
Priestley, Jos., Northumberland.
Prowel, W. R., Siddonsburgh, York (Cumberland).
Purdy, M. E., Montanden, Northumb'ld.
Purington, A. F., Indiana, Indiana.
Pursell, Isaac, Danville, Montour.
Purviance, Geo., Pittsburg, Allegheny.
Putt, M. O., Churchville, Dauphin.

Quail, Chas. E., Auburn, Schuylkill.
Quick, P. A., Sugar Run, Bradford.

Rahauser, Geo. G., Pittsburg, Allegh'y.
Rahter, C. A , Harrisburg, Dauphin.
Raker, H. M., Augusta, Northumb.
Ralston, R. G., Middlesex, Armstrong.
Ramsay, R. N., Schuylkill.
Ramsay, R. W., St. Thomas, Franklin.
Randall, A. Z., Erie, Erie.
Radebaugh, J. M., Gettysburg, Adams.
Randenbush, Abr'm M., Adamstown, Lancaster (Berks).
Rankin, D. N., Allegheny City, Allegh'y.
Rankin, M. M., Rockdale Mills, Jeffer.
Raub, J. T., Mt. Bethel, Northampton.
Read, F. B., Osceola Mills, Clearfield.
Read, Lewis W., Norristown, Montg'y.
Reagan, G. L., Shenandoah, Schuylkill.
Rea, Jas. C., Pittsburg, Allegheny.
Reber, W. M., Bloomsburg, Columbia.
Rebman, G. A., Wrightsville, York.
Redeker, F. W., Espy, Columbia.
Redick, Saml. T., Allegheny, Allegheny.
Reed, A. G., Philadelphia.
Reed, J. H., Sharon, Mercer.
Reed, Jos. A., Dixmont, Allegheny.
Reichard, C. C., Brownsville, Fayette.
Reichard, P. L., Allentown, Lehigh.
Reese, D. J., Renovo, Clinton.
Reid, A. M,, Clarion, Clarion.
Reid, J. K., Conshohocken, Montgomery.
Reid, S. P., Scranton, Lackawanna.
Reighter, W., Philadelphia (Lancaster).
Reilly, Geo. W., Harrisburg, Dauphin.
Reily, W. F., Carlisle, Cumberland.
Reimsnyder, J., Hinkletown, Lancaster.
Reiter, W. C., Pittsburg, Allegheny.
Rentschler, H. D., Ringtown, Schuyl.
Reutter, Geo. N., Benvenue, Dauphin (Perry).
Rex, G. A., Philadelphia.
Rex, O. P., Philadelphia.
Rex, T. A., Pittsburg, Allegheny.
Rhoads, J., Watsontown, Northumb'ld.
Rhoads, Miss A. F , Meadville, Crawford.
Rhodes, Jos., Wampum, Lawrence.
Rice, J. N., Pittston, Luzerne.
Rice, Wm., Rome, Bradford.
Rich, Thos. C., Philadelphia.
Richie, J. H., West Newton, Westmore'ld.
Richardson, Elliott, Philadelphia.
Richardson, Joseph G., Philadelphia.
Richardson, W. L., Montrose, Susqueh.
Richter, Aug., Williamsport, Lycoming.
Rickards, W. M. L., Philadelphia.
Rigg, J. E., Stonersville, Westmoreland.
Riggs, D. W., Allegheny City, Allegh'y.
Riggs, E. S., Allegheny City, Allegheny.
Riggs, W. J., Beaver, Beaver.
Riley, C. K., Pulaski, Lawrence.
Risley, S. D., Philadelphia.
Ritchey, John A., Oil City, Venango.
Ritter, F. D., Gaines, Tioga.
Roberts, A. S., Philadelphia.
Roberts, John B., Philadelphia.
Robertson, J W., Hyde Park, Scranton, Lackawanna.
Robins, E. S., Covington, Tioga.
Robins, E. S., Shamokin, Northumb'ld.
Robins, J. K., Catawissa, Columbia.
Robins, O. M., Shamokin, Northumberland (Schuylkill).
Robinson, J. Q., West Newton, West'ld.

Robinson, F. C., Uniontown, Fayette.
Rockwell, O. H., Monroeton, Bradford.
Roebuck, J. H., Bethlehem, Northamp.
Roebuck, P. J., Litiz, Lancaster.
Rogers, J. J., Huntsville, Luzerne.
Rogers, Robert E., Philadelphia.
Rogers, T. R., Waynesburg, Greene.
Rogers, Wm., Gibson, Susquehanna.
Roland, O., Lancaster, Lancaster.
Roland, W. T., York, York.
Roller, W. C., Hollidaysburg, Blair.
Roop, J. W., New Cumberland, Cumb'd.
Rose, David, Chester, Delaware.
Ross, James, Clarion, Clarion.
Ross, I. E., Wilkesbarre, Luzerne.
Ross, John D., Williamsburg, Blair.
Ross, J. Frank, Clarion, Clarion.
Ross, Samuel M., Altoona, Blair.
Rothrock, A., McVeytown, Mifflin.
Rothrock, Roswell, Middleburg, Snyder.
Rouse, Sam'l J., York, York.
Rupp, H., Hummelstown, Dauphin.
Rutledge, S. R., Blairsville, Indiana.

Sager, Geo. S., Montoursville, Lycoming.
Sajous, C. E., Philadelphia.
Sample, John, Wilkinsburg, Allegheny.
Sampsell, J. W., Penn's Creek, Snyder.
Sampson, T. W., Emlenton, Venango.
Samuels, Edw., Mt. Carmel, Northumberland (Schuylkill).
Sandt, John, Easton, Northampton.
Sandt, Samuel, Easton, Northampton.
Sangston, J. P., Masontown, Fayette.
Santee, Eugene I., Philadelphia.
Sargent, Gorham P., Radnor, Delaware (Montgomery).
Sarver, Wm., Allegheny City, Allegh'y.
Saul, C. H., Steelton, Dauphin
Savery, Wm., Bryn Mawr, Mont.
Saylor, Jean S., Williamsport, Lycom'g.
Schaffer, Chas., Philadelphia.
Schapringer, A., Philadelphia.
Scheidt, P. M., Philadelphia.
Schell, H. S., Philadelphia.
Schilling, G. W., Summit City, Venango.
Schnatterly, L. W., Freeport, Armstrong.
Schoales, J. D., Philadelphia.
Schofield, E. Lane, Wiconisco, Dauphin.
Schott, Arnold, Philadelphia.
Schrack, David, Jeffersonville, Montgomery.
Schrack, John, Shannonville, Montgom'y.
Schultz, S. S., Danville, Montour.
Scott, C. H., Athens, Bradford.
Scott, F. P., Monongahela City, Washington.
Scott, J. Y., Beantleysville, Washington.
Seabrook, C. C., Harrisburg, Dauphin.
Seaman, John K., Lenhartsville, Berks.
Seeley, A. H., Woodhull, Tioga.
Seem, Albert A., Bangor, Northampton.
Seem, A. K., Martin's Creek, North'n.
Seiberling, F. C., Lynnsville, Lehigh.
Seibert, J. P., Chambersburg, Franklin.
Seibert, W. H., Steelton, Dauphin.
Seiler, Carl, Philadelphia.
Seiler, J P., Harrisburg, Dauphin.
Seip, Amos, Easton, Northampton.
Seip, M. S,, Easton, Northampton.
Seip, W. H , Bath, Northampton.
Seiple, L. C., Centre Square, Montg'y.
Seiss, R. S., Littlestown, Adams.
Seltzer, C. M., Philadelphia.
Senseny, E N., Chambersburg, Frank.
Seyfert, Theo. H., Philadelphia.
Shaffer, J. F , Farmersville, Lancaster.
Shakespeare, E. O., Philadelphia.
Shapleigh, E. B., Philadelphia.
Sharpneck, T. H., Jefferson, Greene.
Shattuck, Geo. F., Philadelphia.
Shaw, Thos. W., Pittsburg, Allegheny.
Shaw, W. C., Pittsburg, Allegheny.
Sheaffer, A. H., Lewistown, Mifflin.
Shearer, James M., Dillsburg, York.
Shearer, Jas. Y., Sinking Spring, Berks.
Sheetz, J L., New Oxford, Adams.
Sheibly, J. P., Landisburg, Perry.
Sheller, Adam, Mount Joy, Lancaster.
Shelly, A. F., Philadelphia.
Shepler, J. T., Dunbar, Fayette.
Sherman, A. B., Girardville, Schuylkill.
Shilleto, G. M., Allegheny City, Alleg'y.
Shindel, Jno. Y., Middleburg, Snyder.
Shirk, J. M., Lancaster, Lancaster.
Shirk, Levi A , Fredericksburg, Lebanon (Berks).
Shive, P. C., Plains, Luzerne.
Shoemaker, B., Brownsville, Fayette.
Shoemaker, Geo. G., Church P. O., Clarion.
Shoemaker, J. V., Philadelphia.
Shoemaker, W. P., Bradford, McKean.
Short, R. N., Mechanicsburg, Cumberland.
Shrawder, John S., Ambler, Montg'y.
Shuey, J. H., Custar City, McKean.
Sibbet, R. L., Carlisle, Cumberland.
Silliman, James E., Erie, Erie.
Simington, R. S., Danville, Montour.
Simsohn, Jos. S., Philadelphia.
Singer, J. E., Newport, Perry.
Singer, J. J., Connellsville, Fayette.
Sinkler, W., Philadelphia.
Skillern, P. G., Philadelphia.
Skillern, S. R., Philadelphia.
Skilling, M. J , Philadelphia.
Sloan, J. G., Merrittstown, Fayette.
Sloan, J. G., Monongahela, Washington.
Slocum, Alfred M., Philadelphia.
Smaltz, J. Henry, Philadelphia.
Smathers, W. J., DuBois, Clearfield.
Smith, Amos H., Paradise, Lancaster.
Smith, Albert H., Philadelphia.
Smith, A. M., Beaver Springs, Sny'r.
Smith, C. H., Linglestown, Dauphin.

Smith, E. N., Susquehanna Depot, Susquehanna.
Smith, George, Garretford, Delaware.
Smith, G. W., Hollidaysburg, Blair.
Smith, H. Yale, Philadelphia.
Smith, Henry H., Philadelphia.
Smith, Jas. M., Tyrone, Blair.
Smith, J. K., Harrisburg, Dauphin.
Smith, J. R., Pine Grove Mill, Centre.
Smith, L. A., New Milford, Susquehan.
Smith, Robert B., Tioga, Tioga.
Smith, Robt. Meade, Philadelphia.
Smith, S. S., Driftwood, Cameron (Lycoming).
Smith, Samuel S., Ardmore, Montg'y.
Smith, W. C. J., Pottsville, Schuylkill.
Smith, W. H., Intercourse, Lancaster.
Smith, W L., Wilmington, Lawrence.
Smock, E. L., Klecknersville, Northamp.
Snively, A. P., Hanover, York.
Snively, I. N., Waynesboro', Franklin.
Snively, Whitmer, Pittsburg, Allegheny.
Snodgrass, H. L., Buffalo Village, Washington.
Snodgrass, James H., Pittsburg, Allegheny.
Snowden, S. G , Franklin, Venango.
Snyder, Q. S., Richmond, Northampton.
Solliday, E. S.
Spackman, R. V., Luthersburg, Clearfield.
Spangler, Benj. F., York, York.
Spangler, J. R., York, York.
Spaulding, S. C , Shenandoah, Schuyl.
Speer, Alex., Pittsburg, Allegheny.
Spencer, C. A., Dallas, Luzerne.
Spencer, H. A., Erie, Erie.
Spratt, Geo. R., Coatesville, Chester.
Sprouls, I. N., Claysville, Washington.
Squire, R. A., Scranton, Lackawanna.
Stahley, Geo. D., Easton, Northampton.
Stayer, A. D., Roaring Springs, Blair.
Stearly, J. B., Reading, Berks.
Stebbins, Sumner, Unionville, Chester.
Steck, W. C., Glenvale, York.
Steele, F. C., New Buffalo, Perry.
Stehman, H. B., Lancaster, Lancaster.
Stein, Luther K., Philadelphia.
Steinmetz, E. G., Hokendauqua, Lehigh (Northampton).
Sterrett, J. P , Pittsburg, Allegheny.
Stetler, J. G., Philadelphia.
Stevens, Wm. O., Avondale, Chester.
Stevenson, E. S., Pittsburg, Allegheny.
Stevenson, Jas. M., Pittsburg, Alleg'y.
Stevenson, Silas, New Bedford, Law'nce.
Stewart, J. L., Erie, Erie.
Stewart, J. S., Pittsburg, Allegheny.
Stewart, R. C., Shippensburg, Cumb.
Stewart, Thos., Jr., Carlisle, Cumberl'd.
Stewart, Thos., Sr., Carlisle, Cumberl'd.
Stewart, Wm. G., Newville, Cumb.
Stewart, Wm. H., Kittanning, Armstrong.
Stewart, W. S , Philadelphia.
Stiles, George W., Conshohocken, Montgomery.
Stiles, Harry, Newport, Perry.
Stillé, Alfred, Philadelphia.
Stimpson, A. O., Thompson, Susqueh'na.
Stocker, A. E., Philadelphia.
Stone, J. F., Philadelphia.
Stoner, Wm. B., Northumberland, Northumberland.
Stout, Abram, Bethlehem, Northampton.
Stranahan, C. W., Erie, Erie.
Strawbridge, Geo., Philadelphia.
Strawbridge, J D., Danville, Montour.
Streeter, ——, Custar City, McKean.
Strickler, A. H., Waynesboro', Franklin.
Strickler, A. W., Broad Ford, Fayette.
Strickler, M. B , New Bloomfield, Perry.
Stuart, Thos., Scranton, Lackawanna.
Stubbs, G. E., Philadelphia.
Stubbs, Joseph H., London Grove, Chester.
Sturgeon, Wm. H., Uniontown, Fayette.
Styer, Charles, Philadelphia.
Suesserott, J. L., Chambersburg, Franklin.
Suesserott, L. F., Chambersburg, Franklin.
Suoyer, O. D , So. Easton, Northamp'n.
Sutton, R. S., Pittsburg, Allegheny.
Swartz, H. F., Pittsburg, Allegheny.
Swartz, Jos., Duncannon, Perry.
Swartzlander, Frank, Doylestown, Bucks.
Swaving, J. G. C., Pottsville, Schuylkill.
Swayze, Geo. B. H., Philadelphia.
Swayze, Mary A., Pottsville, Schuylkill.
Swift, E C., Easton, Northampton.
Swigart, I. R , Bannerville, Snyder.
Swing, E. V., Cains, Lancaster (Chester).
Swisher, T. J., Jerseytown, Columbia.

Taggart, D., Jr., Frackville, Schuylkill.
Tambaugh, L. H., Bealesville, Wash.
Taylor, E. W., Polk, Venango.
Taylor, J. Howard, Philadelphia.
Taylor, J. M., Philadelphia.
Taylor, Thos. A., Pomeroy, Chester.
Taylor, Wm. T., Philadelphia.
Tenbroeck, A., Turbutsville, Northum'd.
Temple, J. C., Water Cure, Beaver.
Tewksberry, A. D., Ashley, Luzerne.
Thayer, Alvin, Erie, Erie.
Thickstun, G , Wattsburgh, Erie.
Thomas, A. G., Freeport, Armstrong.
Thomas, Chas. H., Philadelphia.
Thomas, J. D., Buchanan, Allegheny.
Thomas, John G., Newtown Square, Delaware.
Thomas, O. W., Arndtsville, Adams.
Thompson, Benj., Landenberg, Chester.
Thompson, C. K., Fall Brook, Tioga.
Thompson, Geo. W., Mount Union, Huntingdon.

Thompson, J. A., Snow Shoe, Centre.
Thompson, John, Corsica, Jefferson.
Thompson, John C., Bellwood, Blair.
Thompson, L. M., Mahanoy City, Schuylkill.
Thompson, N. G., Brandywine Manor, Chester.
Thompson, Sidney, Spruce Creek, Huntingdon (Blair).
Thomson, J. A., Wrightsville, York (Lancaster).
Thomson, Wm., Philadelphia.
Thorne, W. R., Mastersonville, Lancas.
Throckmorton, W. S., Nineveh, Greene.
Throop, B. H., Scranton, Lackawanna.
Throop, G. S., Scranton, Lackawanna.
Tibbins, J. E., Beach Creek, Clinton.
Tiffany, C. W., Montrose, Susquehanna.
Toboldt, A. L. A., Philadelphia.
Todd, Fred., Houtzdale, Clearfield.
Tomlinson, H. A., Pennsville, Fayette (Lycoming).
Tomlinson, John, Montoursville, Lycoming.
Torrence, J. M., Indiana, Indiana.
Trabert, J. W., Reamstown, Lancaster.
Tracy, E. G., Troy, Bradford.
Tracy, G. P., Burlington, Bradford.
Trautman, B., Philadelphia.
Travers, D. B., Steelton, Dauphin.
Treacy, Dennis J., Philadelphia.
Treichler, A. C., Elizabethtown, Lancaster.
Treichler, C. Galen, Honey Brook, Ches.
Trimble, S., Lima, Delaware.
Trimmer, S. W., White Haven, Luzerne.
Troth, Samuel N., Philadelphia.
Troxell, E. R., Pittston, Luzerne.
Truesdale, ——, Mt. Jackson, Lawrence.
Turnbull, Chas. S , Philadelphia.
Turnbull, Laurence, Philadelphia.
Twitmire, J. H., Sharpsville, Mercer.
Tyson, A. R., Norristown, Montgom'y.
Tyson, Jas., Philadelphia.

Uhler, T. M., Belfast, Northampton.
Ullom, J. F., Rogersville, Greene.
Ulrich, Wm. B., Chester, Delaware.
Umberger, J. R., Dauphin, Dauphin.
Umstead, J. U , Evansburg, Montg'ry.
Underwood, Gideon, Pittston, Luzerne.
Unger, D. F., Mercersburg, Franklin.

Van Camp, J. E., Plainfield, Cumb'd.
Vanderslice, Edward, Philadelphia.
Vandersloot, F. W., Flemington, Clinton.
Vandyke, E. B., Philadelphia.
Van Kirk, T. R., McKeesport, Alleg'y.
Van Sickel, C. N., Wallaceville, Venango.
Van Tries, J. M., St. Thomas, Franklin
Van Tries, Thos. C., Rock Springs, Cen.
Van Valzah, F. H., Spring Mills, Centre.
Van Valzah, H. B., Clearfield, Clearfield.
Van Valzah, S. L., Watsontown, Northumberland.
Van Valzah, W. W., Philadelphia.
Vanvoorhis, J. S., Bellevernon, Fayette.
Varian, Wm., Titusville, Crawford.
Vastine, J. H., Numidia, Montour.
Vaughan, J. E., Houtzdale, Clearfield.
Vedder, W. D., Mansfield, Tioga.
Vogler, Geo. W., Philadelphia.
Voight, C. H., Allegheny, Allegheny.

Waddelle, James D., Middletown (Bigler P. O.), Adams.
Wagenseller, B. F., Selinsgrove, Snyder.
Wagenseller, F. J., Selinsgrove, Snyder.
Waggoner, D. R., McKean, Erie.
Wagner, J. C., Beaver Springs, Snyder.
Waid, A. P., Spartansburg, Crawford.
Waid, J. T., Spartansburg, Crawford.
Walk, Jas. W., Philadelphia.
Walker, Jas. B., Philadelphia.
Walker, R. L., Mansfield, Allegheny.
Walker, Thos. H., Mercersburg, Frankl.
Wallace, Ellerslie, Philadelphia.
Wallace, J. A., Bradford, McKean
Wallace, Wm., Pittsburg, Allegheny.
Walter, Joseph B., Centre Bridge, Bucks.
Warren, E. P.
Waters, D. C., Arnot, Tioga.
Watson, R. B., Lock Haven, Clinton.
Waugh, W. F., Philadelphia.
Weaver, C. W., Shamokin, Northum'nd.
Weaver, G. P., Hanover, York.
Weaver, G. W., Duke Centre, McKean.
Weaver, J. G., Strasburg, Lancaster.
Weaver, Jos. K., Norristown, Montgomery.
Weaver, R. I., Pottsville, Schuylkill.
Weaver, Samuel J., Weaversville, Northampton.
Weaver, W. G., Wilkesbarre, Luzerne.
Webb, W. H., Philadelphia.
Webb, W. W., Wellsboro', Tioga.
Weber, Charles, Pricetown, Berks.
Wehlau, L., Scranton, Lackawanna.
Wehner, Jacob H., Philadelphia.
Weidman, W. Murray, Reading, Berks.
Weir, A H., Philadelphia.
Weisel, Geo., Williamsport, Lycoming.
Weisman, Geo. T., Bainbridge, Lancas'r.
Welch, Wm. M., Philadelphia.
Welchans, G. R., Lancaster, Lancaster.
Wells, J. Ralston, Philadelphia.
Welsh, D. E., Latrobe, Westmoreland.
Welsh, W. S., Franklin, Venango.
Wentz, W. J., New Providence, Lancaster.
Werner, A. J., Duncannon, Perry.
Westlake, E. C., Cherry-tree, Venango.
Weston, John, Chester, Delaware.
Wevill, Richard Henry, Philadelphia.
Weymouth, W. C., Renovo, Clinton (Lycoming).
Whann, W. L., Franklin, Venango.

Wharton, H. R., Philadelphia.
Wharton, R. S., Philadelphia.
Wheeler, E. B., Philadelphia.
Wheeler, H. C., Carbondale, Lackaw'a.
Whelen, Alfred, Philadelphia.
Whitcomb, H., Norristown, Montgomery.
White, J. Wm., Philadelphia.
White, T. H., Williamsburg, Blair.
Whiteside, John E., Philadelphia.
Whittier, G. M., Houtzdale, Clearfield.
Wick, A. J., New Bethlehem, Clarion.
Wiest, John, Short Line, York.
Wiggins, S. L., Blacklick, Indiana.
Wiley, Chas. C., Dixmont, Allegheny.
Wiley, S. N., Norristown, Montgomery.
Willard, De Forest, Philadelphia.
Williams, A. M., Bradford, McKean.
Williams, Horace, Philadelphia.
Williams, Roger, Pittsburg, Allegheny.
Williams, W. F., Mt. Carmel, Northumberland.
Williamson, Jesse, Philadelphia.
Wilmot, E. F. Great Bend, Susquehanna.
Wilson, Benj B., Philadelphia.
Wilson, Ellwood, Philadelphia.
Wilson, H., Portersville, Butler.
Wilson, H. A., Philadelphia.
Wilson, J., Pleasantville, Venango.
Wilson, J. F., Philadelphia.
Wilson, J. H., Beaver, Beaver.
Wilson, Jas C., Philadelphia.
Wilson, W. C. Q., New Freeport, Greene.
Wiltrout, J. D., Schuylkill Haven, Schuyl.
Winters, Jos., Lower Merion, Montgo'y.
Wireback, J. J., St Petersburg, Clarion.
Wirgman, Chas., Philadelphia.
Wishart, C. A., Pittsburg, Allegheny.
Wishart, H. S., Harrisonville, Fulton (Franklin).
Wishart, J. W., Pittsburg, Allegheny.
Witherspoon, W. M., Shippensburg, Cumberland.
Witman, H. O., Harrisburg, Dauphin.
Wittig, Chas. F., Philadelphia.
Wolfe, Samuel, Skippackville, Montgomery.
Wolford, W. Scott, Philadelphia.
Wood, C. B., Monongahela City, Wash.
Wood, E. A., Pittsburg, Allegheny.
Wood, H. C., Philadelphia.
Wood, John D., New Castle, Lawrence.
Woodburn, S. M., Towanda, Bradford.
Woodbury, Frank, Philadelphia.
Woods, A. A., Erie, Erie.
Woods, D. Flavel, Philadelphia.
Woods, John F., Boalsburg, Centre.
Woods, L. N., Wheatland, Mercer.
Woods, W. W., Stanton, Jefferson.
Woodward, Chas. E., West Chester, Chester.
Woolford, Dillsburg, York.
Woomer, H. F., McKees Half Falls, Snyder.
Wright, J. H., Allegheny, Allegheny.
Wright, Olin S., Bradford, McKean.

Yarrow, Thomas J., Philadelphia.
Yeomans, Geo., Philadelphia.
Yost, G. P., Loganville, York.
Yost, J. F., Bethesda, Lancaster.
Young, J. W., Williamsport, Lycoming.
Young, Samuel, Allentown, Lehigh.
Young, Theo. J., Titusville, Crawford.

Zeigler, G. W., Carlisle, Cumberland.
Zeigler, S. P., Carlisle, Cumberland
Ziegler, Geo. J., Philadelphia.
Ziegler, J. P., Mt. Joy, Lancaster.
Ziegler, Jacob L., Mt. Joy, Lancaster.
Ziegler, Wm. L., Philadelphia.

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WELLCOME LIBRARY INSTITUTE

REPORTS FROM COUNTY MEDICAL SOCIETIES ON MEDICAL STUDENTS UNDER TUITION OF MEMBERS.

Resolved, That the Secretaries of the several County Societies in the State shall, within three months after the passage of this resolution, report to the Secretary of the State Society the number of students of medicine under tuition of members in their respective Societies during the year ending May 1, 1881, and the number that appeared before the Medical Examiners for examination during the same time; and that said reports shall be presented in the next *Transactions* of the State Society.

The Counties given below are those only for which Reports have been furnished.

Adams County—No students.
Centre County—Two students, both examined.
Chester County—One student under tuition, and has passed.
Clearfield County—No students.
Dauphin County—One student examined.
Delaware County—No students under tuition.
Luzerne County—One appeared and passed.
Lycoming County—Three under tuition: one examined; other two well qualified.
Mercer County—Three under tuition; none examined.
Mifflin County—Two examined; one passed.
Northampton County—Under tuition five; examined five.
Snyder County—Three students; none examined.
Venango County—No students.
Washington County—Six examined.
York County—Seven under tuition; three examined.

The attention of County Societies is respectfully directed to the following clauses of the Constitution and By-Laws of the State Society, viz.:—

Constitution	Article VII.
By-Laws	Article V. Secs. 1 and 2.
Constitution	Article V. Sec. 9.

From which it appears

First. That each County Society is liable to assessment in proportion to the membership which it reports to the State Society.

Second. That the representation of each County Society at the meetings of the State Society is strictly limited by the membership thus reported; and

Third. That no member can continue in good standing in his County Society, who declines to contribute his proportion of the annual assessment, unless the Society makes good his deficiency.

N. B.—It will be remembered that the State Society now imposes no assessment on the County Societies or individual members thereof other than that for the Transactions.